COAL AGE

The Only National Paper Devoted to Coal Mining and Coal Marketing

C. E. LESHER, *Editor*

Volume 21 NEW YORK, THURSDAY, MAY 11, 1922 Number 19

A Real Labor Trust

WHAT an opportunity the United Mine Workers and Mr. Bland have overlooked. What they as partisan pleaders for the union miner seek is better conditions for the miner; more days work at high wages that he may have much greater annual earnings. They have sensed and admitted that there are too many workers in the mines. They can see that were it possible to reduce the number to about two-thirds of the present, then the remainder would be more steadily engaged in digging coal and most certainly would have handsome incomes at the scale of wages in the last contract.

If the union will but extend to other states the laws with respect to the employment of miners now in effect in the hard coal regions of Pennsylvania and to all of Illinois they will have the opportunity to really control the situation. The laws of Pennsylvania require that before a man can become a miner in the anthracite mines he must have served an apprenticeship as assistant to a miner. Thus it is impossible to increase the number of diggers—the real getters of coal—except by the slow process of bringing them up through the ranks. This has prevented the possibility of an oversupply of labor in that part of the coal fields.

Similar laws in Illinois require that no man shall be employed as a miner who has not a certificate from the state. These certificates must be granted by a board every member of which has served at least five years as a miner, one year in the State of Illinois. In other words, the United Mine Workers absolutely control in that state the issuance of certificates of competency to every miner. If they so desired they could limit the number; could cut down the oversupply of men. If the number of miners were thus limited by the union, the operators would automatically reduce the number of day pay men to correspond.

There is nothing new or original in this suggestion. It is a practice followed by the unions in the building trades. In certain sections of the country the masons' union, for instance, requires that a boss mason—that is, an employer—must employ a certain minimum number of masons—11 in one case that has come to our attention—before he is permitted to engage an apprentice or helper. The purpose is obvious. A continual labor shortage is produced. And where there is a shortage of labor, wages are easily kept at high levels. Those that are on the union rolls in good standing are assured of the best working time the industry affords.

If the United Mine Workers will but thus get control of the mine labor, by limiting its membership, overcapacity if not overdevelopment will be reduced. That is, if instead of asking for six hours a day and five days a week for 600,000 men, they demand and obtain eight hours a day for six days a week for 450,000 men they will have a large part of what they are now demanding.

Of course such a program might meet opposition from the operators who prefer to employ non-union labor and the public may not be quite ready to hand such a basic industry as coal over to the union.

Wanted—A Plan

THERE is unanimity among the editorial writers of the daily press and the critics of the coal industry that something is wrong; that what is needed is something different. But so far all they have been able to espouse is a demand for facts and yet more facts. No plan has been brought forth.

The miners say, and with considerable truth, that with a third more men in the business of digging coal than are actually required, there is not enough pay in it to support them the year around, especially if they are organized and refuse to reduce wages and share with non-union miners in the going business. They demand more or the same high rate of wages that they enjoyed in their last contract, shorter hours, and several changes in working conditions that will increase the cost of production of coal and help them to live as well or better. The miners' union seeks not to mitigate in any respect its hold on the coal industry, but rather to extend that hold. So that whoever brings forth a plan must reckon with satisfying or defying the demands and aspirations of the United Mine Workers. The plan must either put wages even higher or coldly squeeze out a third of the workers.

The operators ask to be left alone, saying that under the highly competitive conditions of the bituminous coal trade, the public is protected against extortionate prices. The operator wants to make a profit, and we have heard no critic say that he is not entitled to a profit; nay, we have heard no one say but that he is entitled to at least a profit of 10 per cent. And surely there are some among the self-appointed judgment givers who will give credence to those figures on profits that are available, a part of which are from government sources and therefore not under the shadow of suspicion. The figures on profits, from those assembled by the Fuel Administration, the Federal Trade Commission, the Internal Revenue Bureau and the Bureau of the Census, to those compiled by the operators themselves, all unite in showing profits on the average to be within reason. So we find that the plan that is finally to come forth must make provision for profits on the capital invested in the production of coal. If the plan is to satisfy the operators it must be so designed as to permit the expression of individual enterprise and not reduce all to a dead level.

The public wants someone to come forward with a plan to "reorganize" the coal industry. The public judges the coal industry by the price of coal and its knowledge of the price of coal is found on the invoice from the retail dealer. Not only is the public concep-

tion of the price of coal founded on mine price plus freight plus retailers' margins but it is true that the public of the East has shown much more interest in the subject than has the public in the West. In other words, it is the price of hard coal delivered at the curb that is the real subject of popular discussion. Furthermore, the public is critical of an industry, both the capital and the labor in it, that is in turmoil so frequently, so vociferously and on so large a scale. Since the miners and the operators engage in a national fracas and call on the public for judgment and support, they may expect to get some sort of judgment. The plan, to satisfy the public, must therefore take this large question out of the public forum for all future time and must leave the public satisfied with the price of its coal.

There is yet another element that must be reckoned into the plan. The non-union coal fields are not bound by the wage findings of the union areas except in a general way. Yet again the situation in anthracite is so different from that in the bituminous coal fields that the same scheme will not cover both.

It is reported that the President and his advisers are working on such a plan. We are given to understand that they are not even suggesting a set of terms for settlement of the present strike situation, but that they are looking ahead and seek a remedy so basic that no future controversy can arise. We believe that, given sufficient time, they will come to some conclusion—that the government at Washington, working quietly and outside the domain of Congressional committee hearing rooms, can and will secure all the data that it requires. From such a source we have every expectation for reasoned conclusion, not partisan protest such as has just flowed from the House Labor Committee.

But we feel that when all is said and done there will still be the necessity for a plan. The administration will find no panacea for the ills of the bituminous coal industry. The most that can be expected is a clear statement of the problems, some good advice for the public, the miner and the operators and suggestions for gradual elimination of trouble if the advice is followed.

An Experiment to Watch

TO PLACE the industry on a high plane of integrity and efficiency and to correlate the efforts toward betterment made by existing organizations, through a conference association representative of the whole industry and dedicated to the improvement of the service which the industry renders to communities, states and the nation, is the purpose of a new organization in the construction industry, the American Construction Council.

All branches of the industry are represented in the new body—architects, engineers, general contractors, sub-contractors, construction labor, material and equipment manufacturers and dealers, financial, bond, and real estate interests, public utility construction departments and the government. Here we have in one group for the first time perhaps all interests involved in a single industry.

Herbert Hoover, who is to be the first chairman of the Council, in accepting the responsibility, emphasized the need for such an all-embracing organization and suggested that had it been in existence previously it could have saved that industry much in the way of public confidence by dissemination of unbiased facts.

Here are some of the items on the program—a code of ethics, a national building code, research and statistical bureau, lengthening of the building season, elimination of waste, standardization, development of apprenticeship systems and encouragement of local study and better understanding of building situations. To show the country that the baseball and movie worlds are not alone in recognizing talent, they have engaged Franklin D. Roosevelt, formerly Assistant Secretary of the Navy, for president.

Is there not the germ of an idea for the coal industry in this development? It is hard to conceive of interests more diverse than coal operators, jobbers, retailers, mine workers, engineers, equipment manufacturers and financiers, yet we doubt not that the organizers of this new Council found harmony as difficult in the construction industry.

A Needed Stimulus

AN ENGINEER who had spent years in the metal mines of the West recently remarked upon the notable lack of young college men about the coal mines. To use his expression, "One can hardly go in a metal mine without bouncing a rock off the head of at least two embryo mining engineers," but he could travel for days and never find one in the coal mines.

Coal-mining camps are not less inviting than metal-mining towns; a shovelful of coal is no heavier than one of quartz; engineering and management problems are no less interesting and intriguing in coal than in hard rock mines; the opportunities in an industry as extensive as coal should not be less but greater than in the more restricted related industry, yet it is true that coal mining is singularly lacking in that sort of engineering talent that gives youthful life and vigor to metal mining.

Consider for a moment the process through which progress in such an enterprise is attained. The workers at the face, the drivers of mine locomotives—the workers who do the tasks of producing coal—are the ones best suited to locate, isolate and capitalize the opportunities for mechanical and managerial improvement. Who can better tell how to improve the mining machine, the mechanical loader, the mine layout, than the worker in the mine?

If that worker is an untrained laborer there will be no suggestion. If that worker is trained as mining schools train mechanical, electrical and mining engineers, then suggestions, ideas, plans and progress will result. Practice is better than theory for testing out ideas, and the trained man who spends his working hours with a machine will finally overcome every obstacle in the way of adapting the machine to do all the work.

It is our creed that efficiency in the mining of coal is measured in terms of the substitution of mechanical for manual processes. Many operators are slow to recognize this; the miners' union opposes it.

JOHN L. LEWIS, president of the miners' union, with Secretary of Labor Davis visited the White House on Thursday, May 4, 1922, and discussed the coal situation with the President.

STILL NEUTRAL. — Two courses are open to the striking coal miner, but he sternly refuses to take his pick.—*James J. Montague, in the New York Tribune.*

HUNDREDS OF ACRES ARE ALREADY SUBJECT TO THE GREAT AND RAPIDLY SPREADING RED ASH FIRE

Red Ash Co.'s Mine Fire, Thought to Be Slushed Out, Blazes Up, Threatening Near-by Properties

Fire Travels Six Feet per Day in One Direction and Four Feet in Another—Stripping to Stop Fire Stopped by Union—Fire for Five Years Believed to Be Dead

By D. C. Ashmead*
Kingston, Pa.

NOTHING in the anthracite region has proved more destructive of property than the mine fire. In this field the coal deposits are numerous and overlie each other, the intervals separating adjacent beds being comparatively small. Where one or more of these measures has been mined out, the rock between them not infrequently caves, permitting leakage of air from one bed to the other. Thus is the fire aided in its extension.

Various methods of procedure have from time to time been devised to cope with such fires. Unfortunately, however, means successfully employed in one instance may fail in another, even under apparently similar conditions.

One of the most dangerous fires now burning in the anthracite region is in an operation of the Red Ash Coal Co., near Wilkes-Barre, held under lease from the Lehigh & Wilkes-Barre Coal Co. This property embraces a strip of land about 2,600 ft. wide and 7,400 ft. long, lying along the mountainside at the outcrop and containing two beds of coal. Of these two, the Red Ash is the lower. In this locality this bed is split by a 6-ft. parting into the upper Red Ash bed, which is 6 ft. thick, and the lower Red Ash bed, with a thickness of 4 ft. Above and separated from the upper Red Ash bed by 27 ft. of slate lies the Ross coal bed, which here is about 9 ft. thick. Over the Ross bed is 47 ft. of black and 68 ft. of gray stone. The black material is a coarse and probably highly carboniferous slate.

At the time the fire started first mining had been completed in the area to the south and east of the breaker and some of the pillars had been removed. In consequence, many cracks and caves had extended not only from bed to bed but up to the surface.

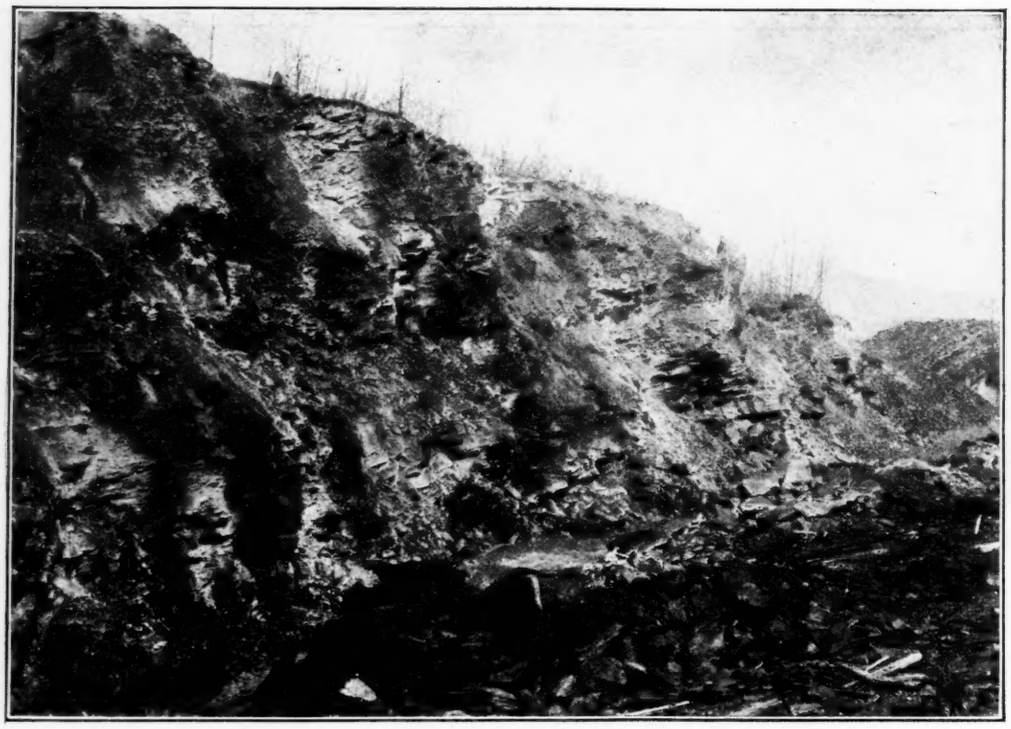
On the afternoon of Saturday, Dec. 6, 1915, a loaded mine car jumped the track in a room neck near the point marked *X* on the accompanying map. The men employed in that vicinity placed this car back on the rails and then went home. On the following Monday fire was discovered at approximately the point where the car had been derailed. It is presumed that one of the men who assisted in replacing the mine car hung his lamp on one of the mine timbers and then forgot it. Only the previous week the company had laid off the night watchman who patrolled the mine looking for fires, as his services were deemed unnecessary.

Immediate steps were taken to combat the fire. Concrete stoppings were placed in all openings in that sec-

FIRE BURNING ON OUTCROPS OF COAL

Taken at the point marked *B* on the map. Near the point where the man is standing is an opening from an old breast which now acts as an intake. Here the air enters the mine with a roar.

*Anthracite editor, *Coal Age*.



A Burning Strip-Pit Face

Taken at the point marked *A* on the accompanying map of the Red Ash Mine. The white patches represent ashes. The coal is not burning at this point, but the rock above and below it is already on fire. Experience shows that the fire travels faster in the stray coal stringers running through the roof than in the coal itself. The fire has not been stopped by this old stripping, over which it spread between Nov. 1, 1921, and April 1, 1922. In fact the fire ran over it with great ease.

tion of the mine, the idea being to seal the fire within a limited area. Next, boreholes were drilled from the surface and the sealed area was flushed. In all, thirty-two boreholes were sunk. The approximate location of these holes is shown on the map and the area within the stoppings just mentioned is indicated by hatching. It was believed that this would extinguish the fire, and for a period of five years no more was seen or heard of it. In consequence everyone believed that it had been effectually smothered and that all danger was past.

Early in 1921, however, the fire broke through its barriers and began moving toward the outcrop in a southerly direction, as shown by the dot-and-dash lines in the map. Simultaneously it broke through to the eastward and by April 1, 1921, had spread over the area indicated, covering about 20 acres. During the next six months it spread to the southwest and by Nov. 1, 1921, had covered an additional 38.78 acres, as indicated on the map. It had thus advanced at the rate of 200 ft. per month to its limits as they existed at that time. Its progress in the direction of the Baltimore No. 5 colliery of the Hudson Coal Co. had been only 750 ft., which is a speed of 120 ft. per month, or about 30 ft. per week.

At this time the fire was about 3,400 ft. from the eastern boundary of the property. Had it kept on going at a uniform rate, it would have reached the boundary line in about 100 weeks. During the next four months, however, the fire advanced in the same direction about 800 ft., or at a rate of nearly 50 ft. per week. Thus on April 1, 1922, it was only 2,600 ft. from the Hudson Coal Co.'s line.

During this latter period of four months, however, the fire had crept to the outcrop on the south and east and the total area affected amounted to 188.2 acres. Its exact boundaries on the northwest are impossible to determine, as none of the workings can be entered. It is not unreasonable to suppose, however, that the fire now covers the area indicated upon the map.

On the north side of the property a barrier pillar separates the Red Ash Coal Co.'s workings from the Lehigh & Wilkes-Barre Coal Co.'s old Empire mine, which now forms part of the Stanton colliery. The western portion of the Red Ash Coal Co.'s operations are free from water, as they are higher than the water-level tunnel in the No. 2 mine, and as these two operations are connected the water naturally drains out.

In consequence, the only protection left to the Lehigh & Wilkes-Barre Coal Co. is the barrier pillar between the properties. This is continuously inspected to see that the fire does not penetrate it. Fires have been known to pierce such barrier pillars even when they are entirely solid, and it is obvious, therefore, that the Empire workings are in danger.

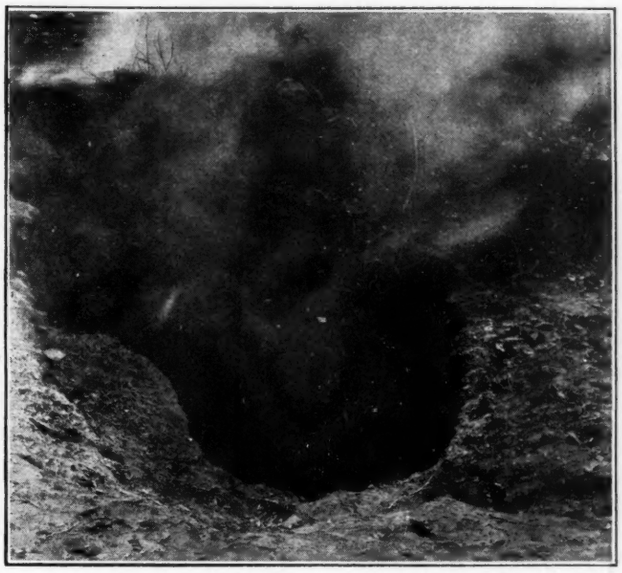
The fire cannot spread on the northeast side of the property, as the coal in this region lies below drainage level and all spaces are thus full of water. At present, however, there is nothing to prevent it from spreading throughout those workings that lie above this elevation. Should this occur, it would endanger the workings of the Baltimore No. 5 colliery of the Hudson Coal Co. As the fire is traveling more rapidly in this direction than in any other, this company has been forced to take measures to prevent it from proceeding further.

At the mouth of the No. 1 slope, shown on the map, the Red Ash Coal Co. has stripped the surface intending to remove the coal at this point. Application has been made to the United Mine Workers of America to obtain permission for the hiring of 260 men, employees of the Red Ash Coal Co., to remove this coal during the present strike and therefore reduce the danger of the fire spreading along the outcrop in this direction.

During the month of February, Seward E. Button, chief of the State Mining Department, called a meeting of representatives of all the companies whose mines are threatened by this fire. At this meeting the necessity of checking the spread of this fire was emphasized. At a second meeting E. R. Pettebone, consulting engineer of the Hudson Coal Co., presented two plans for coping with it. The first was to dig a ditch near the

ONE OF THE POINTS WHERE STEAM ESCAPES

This is shown at *D* on the map. The steam down in the hole is entirely uncondensed and therefore transparent. For this reason it is possible to see way down into the cave.



ANOTHER VIEW OF THE SAME FUMAROLE

The steam condenses as soon as it reaches the surface. Holes like these will be filled up, as they enable the fire to draw on its intakes and often reverse, thus themselves becoming intakes.

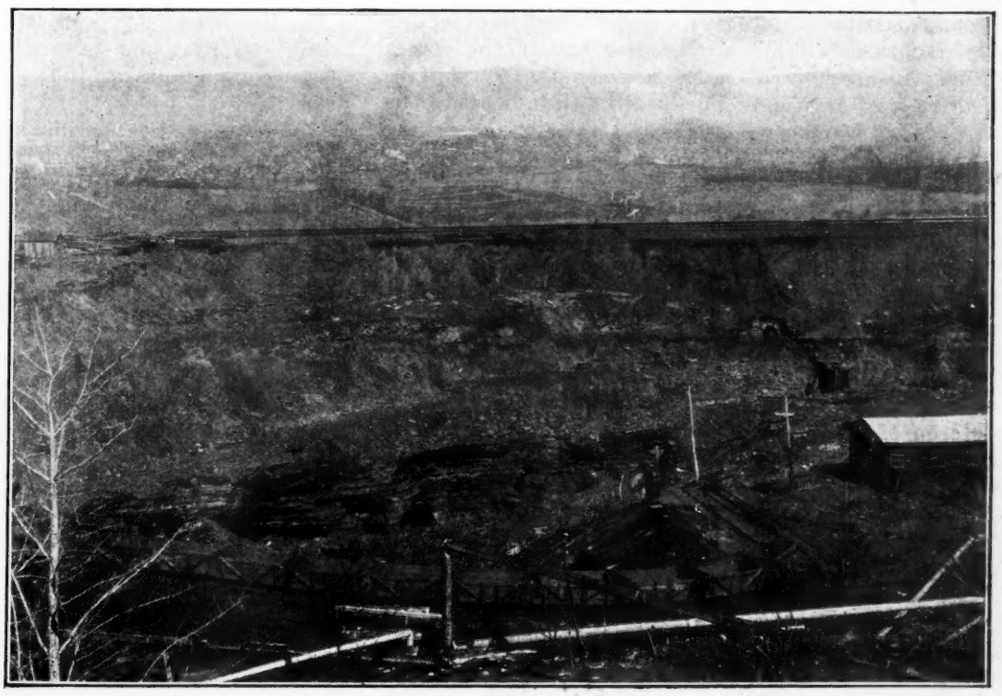
extreme eastern end of the property adjacent to the Hudson Coal Co. line. This was to extend down to water level in the mine. This trench would be about 100 ft. wide at the bottom and its lowest point would be 180 ft. below the surface. It would be approximately 800 ft. long. Stripping contractors from various parts of the country inspected the work and estimated that it would cost approximately $1,000,000. This was deemed too expensive to attempt.

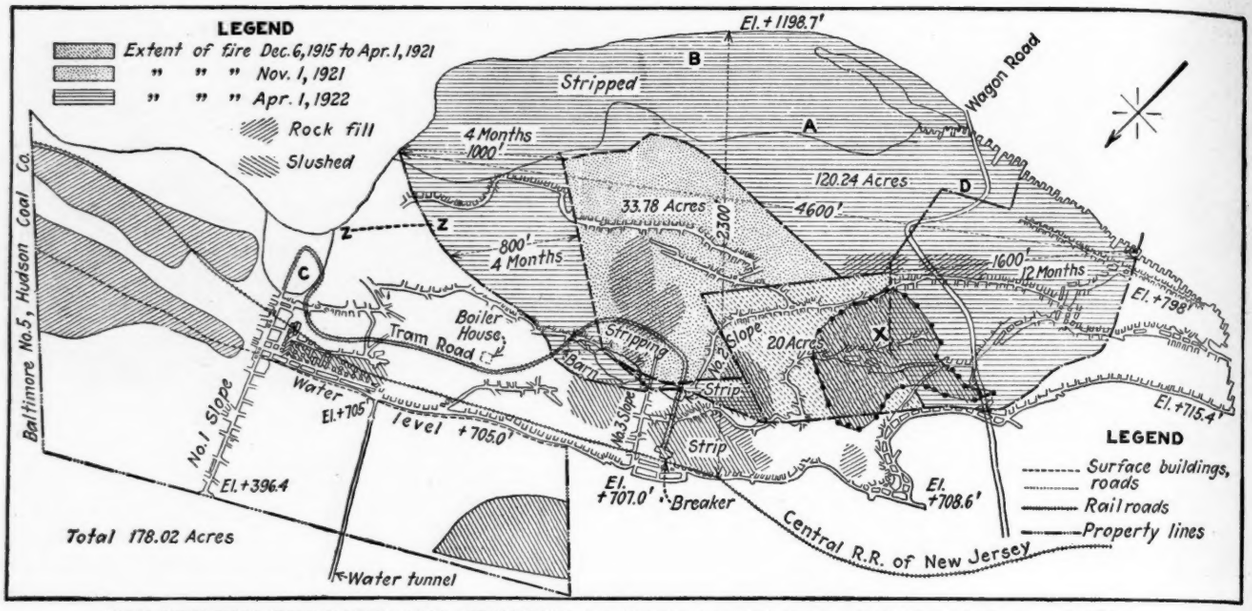
The second plan was then adopted as being feasible, and work upon it is now being prosecuted. This is as follows: Coal from the stripping at the mouth of No. 1 slope will be removed first. Then a timber gangway will be built from the No. 1 slope to the entrance of the water tunnel, 12-in. timbers being used for the legs and 16-in. for the cap pieces. The timber will be so centered that new sets may be placed between the old ones as they decay. Lagging 3 in. thick will be placed outside these timbers. Slush will then be run in outside the lagging and all of the void space above the timbers and at the sides will be filled with this material. In some places the roof as far up as the Ross bed has fallen, this being here a distance of about 40 ft.

Light brattices are being placed in all the openings on the west side of the No. 1 slope. At the present time these are not being made airtight, as it is thought that blackdamp might collect behind them and endanger the lives of the men working in the slope and tunnel. Until this tunnel is finished, a door will be maintained

Entrance to No. 1 Slope

This is the point at which the fire is being fought. It is marked on the map by the letter *C*. Note will be taken of the stripping at the mouth of the slope. This is the strip pit the working of which the United Mine Workers of America has been asked to permit on the ground that to discontinue work would, like the failure of the pumps and fans, jeopardize the life of the properties on which mine workers' own future livelihood rests.





MAP SHOWING THE RAPID AND MENACING ADVANCE OF THE FIRE FROM ITS INITIAL POINT, X

An open lamp which a man hung on a timber by its hook while replacing a wrecked mine car is believed to have caused this accident. Many fires probably have been started in just that way, and it is a real indictment of the open lamp and of combustible timber that they can start fires which may cost millions to extinguish, doing damage meantime that may destroy property of an equal or greater value.

across it, reducing the amount of air that can reach the fire from this direction. A light brattice also has been placed in the water tunnel, reducing the quantity of air that can feed the fire from this passage.

It is estimated that 35,000 cu.ft. of air per minute is entering the workings from these two sources. If this air can be prevented from reaching the fire, the intensity with which it burns will be lessened. The fire has been able to advance against its known air supply at the rate of over 30 ft. per week. The amount of air that it has received from behind through the numerous caves and cracks to the surface has been sufficient to carry it against the air that it was receiving from the front.

The second step in this plan is to fill in behind the stoppings with slush. This will be forced tight against the roof and will fill all the openings in the several beds. Just below the water level on the No. 1 slope, brattices will be placed and slush forced in behind them. Below the water-level gangway, which is actually a little above water level, a large cave has taken place. It is the intention to fill this in order to support the roof so that no cracks will occur at this point, bringing air in from the surface.

Having shut off the air supply from the fire in this manner, a number of boreholes will be sunk in the area southeast of the point where the water-level gangway and No. 1 slope join. As much slush as possible will be run into these holes to act as a further air seal and to support the roof. All openings and cracks in the outcrop of the Ross bed, which runs southeast along the line *ZZ* shown on the map, will be filled. It is expected that this will effectually stop the fire, first, by cutting off all air feeding it from the mine; second, by forming a pocket within which blackdamp will collect, and, third, by filling all openings, thus cutting off the draft from the surface.

Just what effect the procedure above outlined will have upon the fire itself is, of course, unknown. The direction of its travel may be reversed by shutting off the air from a certain quarter, and it may move some other way. It is hoped, however, that the expedients above described will prevent the fire from endangering the neighboring properties. This is the chief purpose, that of extinguishing the fire being only secondary.

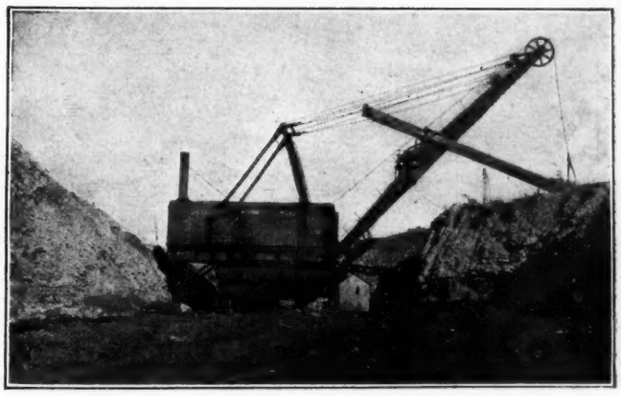
Some interesting sights may be seen in the present fire area. At one point it would appear that the gray sandstone rock was burning, as it is unquestionably, at a white heat. This may, however, be caused by fire in the slate and coal below it. In many places immediately adjacent to points where the coal has been stripped the rock both above and below the coal is burning, though the coal itself is not. One may stand near some of the cracks and caves to the surface and see the air currents reverse themselves from time to time. At other points the air enters the openings with a roaring noise. On a clear, cool day great clouds of steam rise from the fire area and to an observer at a distance it appears as if the whole mountainside were burning.

Another peculiar circumstance attending this fire is that when the atmospheric temperature is below 65 deg. F. the fire apparently travels toward the outcrop. At about 65 deg. the fire seems to be at a standstill, but when the temperature rises above this point, it moves down into the mine.

IN CO-OPERATION WITH a shipyard where oxygen gas used for cutting and welding is distributed under pressure through a long system of pipes, tests have been made by the Bureau of Mines to determine the feasibility of using a stench for detecting and eliminating leakage of the expensive oxygen. It was recommended that a stench such as thyl mercaptan, amyl acetate, or phenyl isocyanide be applied in the distributing line at a pressure of 30 lb., as greater danger of ignition or explosion exists if application is made in the high-pressure line at the compressors. Application of stenches to fuel gases has been studied by the bureau with especial reference to stenches for detecting leakage of blue water gas and natural gas. In experimental tests on stench warning systems recently installed on compressed-air lines at various metal mines, the warnings have been distributed among distant workings in 2½ to 10 minutes, but no occasion has occurred thus far for using a stench for a necessary warning.

Strip-Pit Economics as Developed at Shoveltown Mine

By Alphonse F. Brosky*
Pittsburgh, Pa.



Coal Is Being Uncovered Ahead of Demand and Left for a Better Market—Boiler-Feed Pipes Lined and Leveled with Transit to Avoid Trouble from Frost—Haulage and Shooting Methods

DEPRESSION in the coal market is inevitably mirrored in mine output. At times when competition is keen, only mines operated at low cost can continue to operate. High-cost developments shut down, but resume activities quickly when demand increases. Doubtless it would prove a boon to all concerned if, through storage or otherwise, mining activity could be made more nearly uniform without excessive cost. The storage of bituminous coal as ordinarily effected involves not only an added expense but grave danger from spontaneous combustion.

Strippable coal areas of large extent offer a safe means of storing an appreciable quantity of fuel ready for quick shipment. The "carrying charge" on coal thus made available for market is comparatively small and the risk from spontaneous firing slight.

On the headwaters of Bear Run, four miles southwest of Osceola Mills, Pa., the Stine Coal Co., a subsidiary of the Gorman-Leonard Coal Co., of Worcester, Mass., has 433 acres of coal, approximately 250 of which are now being stripped. This operation is locally known as the Shoveltown mine. The large stripping shovel at this plant is kept in continuous operation, regardless of market conditions, so that it will be ready to load out the stripped coal as rapidly as possible as soon as the market is favorable. During the past year or more, while the demand for coal has been light, the stripping shovel has uncovered approximately 300,000 tons of coal. This is ready to be loaded and shipped when market conditions warrant.

Cover of Coal Nowhere Exceeds Forty Feet

The map shows the topographical and structural conditions that combine so fortunately to make this tract suitable for stripping. The key horizon taken is 1392.3 ft. A.T., as established by the U. S. Geological Survey. In consequence the true elevation of any point shown on this map may be found by adding the figure stated to the height shown. Because the coal bed nearly follows the contour of the surface, the greatest depth of overburden is 40 ft. and the average depth of cover does not exceed 20 or 25 ft. The overburden consists of shale, clay and sandstone. On an average section the coal is overlaid by 10 ft. of shale and about 10 ft. of thinly laminated sandstone, the whole being covered with clay and alluvium.

*Bituminous editor, *Coal Age*.

The formation lying above the coal at different points, however, has marked variations. At the present time the stripping shovel is at work on the eastern extremity of the crop line. Here the contact above the coal is sandstone, whereas in most cases to the west it is a loose shale. Where the thickness of overburden exceeds 25 ft. a formation of clay and shale is found above the sandstone. The clay is loose and easily shoveled, and the rocks break into pieces of such size that they readily may be handled. The tendency of the clay to swell upon weathering does not introduce any serious obstacle to operation at this depth, as ample space is available for spoiling.

Coal Mined Varies Greatly in Thickness

The exact identity of the coal bed being worked has not been definitely established. It is generally accepted as a merging of the *C*, or upper Kittanning, and the *C'*, or lower Kittanning. At two distinct points in the southwest portion of the pit the coal pinches out over small areas, to thicken compensatingly at other places. The character of the coal may best be defined by stating that it lies on the side of the first, or Moshannon, basin.

Over most of the area the coal has an average thickness of 60 in. In pockets, however, it thickens to as much as 9 ft., with corresponding adjacent thin areas of 2 to 3 ft. The stratum immediately overlying the coal bed is, in the main, loose shale, which makes stripping easy but would make mining by underground methods exceptionally difficult, for only by close timbering could the roof be supported. Small quantities of mother coal are found throughout the bed, and an intermittent streak of slate is found approximately 2 ft. from the bottom, which is a fireclay from 9 to 14 ft. thick. The upper portion of the bed is composed of 4 to 6 in. of bone.

Before any real development was done on the Shoveltown property it was thoroughly prospected. A number of test shafts were put down at intervals near the outcrop, and about fifty diamond-drill holes were sunk all over the deeper portion of the tract. From the data and information thus collected the structural map shown herewith was laid out. The precautions thus taken cost little in comparison to what may be lost should the coal fail in a property that has not been tested. In an area where the coal is not level, but has dips and basins, a structural map proves almost as invalu-

Train of Cars

Two-ton mine cars in twenty-five car trips are used at this stripping. The side board is hinged and collapses inward if hit by the shovel.

able as the steam shovels themselves, for without it the deposit cannot be worked with economy and efficiency.

With such a map an operator can forecast the difficulties he will encounter throughout the life of the property, can decide upon the most economical method of working, keeping in mind the problems of drainage, track grades, etc. The drill records show how much coal the tract contains, gives a correct idea of its nature, and also determines the depth of overburden throughout the entire area. A method of attack which will require only slight changes throughout the life of the operation may then be planned, even before a single shovel arrives on the job. With such preliminary precautions, failure, if it results, can be attributed only to carelessness or mismanagement.

To strip the Shoveltown property a 340-ton shovel with an 80-ft. boom and 6-cu.yd. dipper is used. The coal is loaded out by two smaller shovels, one weighing 36 tons and the other 28 tons, the dippers being of 1 cu.yd. capacity. To facilitate drainage the tract will be worked in two sections, the stripping shovel cutting across the neck on the eastern side of the property, thus separating the head extension from the main body. This neck cut is indicated by *CD* in the map.

Starting at *A* in the northwest portion of the property, the stripping shovel followed the crop line in a counterclockwise direction southward to *F*. Here it "boxed in" and retraced its course northward to *A*, where it again turned back, returning to *F*. It then proceeded eastward toward *C*, and will circle the property, spiraling inward.

Shovel Stays by Water Supply in Winter

The need for water was the occasion of the redoubling cuts on the western end of the property. The boiler-feed supply was drawn from springs in the neighborhood of *A*, and as the work was prosecuted during the winter it was advantageous for the shovel to remain as close as possible to the source of this supply. When the shovel doubles back and forth along the side of a property more men are required to keep the track clean and the coal trains and the shovel interfere with each other.

After the third cut along the western boundary the shovel proceeded from *F* to *C* on the neck. Here it cut across to *D* and followed around the crop line to *E*, which is its present approximate position. Thence it will advance to *C*, at which point it will again cut across the neck and proceed north and west to the starting point at *A*.

In cutting across the neck from *C* to *D* the stripping shovel trenched in as narrowly as possible, because the spoil resulting from this cut must be handled again and in addition the cover upon which it was placed will have to be removed.

Because of the large acreage, two loading shovels may be operated without interfering with each other. Thus far the stripper has been practically in continuous operation, whereas the loading shovels have not. As a result, approximately 300,000 tons of coal are now in reserve for the loaders. Even if these machines worked on triple shifts it would take some months for them to catch up with the stripper. By reason of the shallow cover over the greater portion of the property the stripping machine will be able to maintain a cut 70 to 85 ft. in width. This, of course, may be narrowed down to 50 or 60 ft. for short distances where the cover attains a thickness of 40 ft. or thereabout.

Track Is First Placed in Center of Cut

In keeping with ordinary stripping practice the pit track rests upon the coal bank. During the first loading cut this track is laid in the middle of the cut, and on the succeeding cut it is shoved over toward the solid. The two loading shovels reciprocate, working first toward, then away from, each other. They do not pass, each having its own section to load. By piling the shallow cover high in the spoil bank an open space is left between the bank and the coal bench. This does not close in materially between successive cuts.

Shotholes are put down in the overburden by means of a 5-in. churn drill. So far, it has been necessary to make only one row of holes, but as the stripping progresses it probably will be advantageous to use at least two. These holes are put down to within approximately 8 ft. of the coal, sprung with dynamite and then charged with from 250 to 400 lb. of black powder. In the coal the shotholes are put down with two pneumatic hand drills. These holes are spaced at 10-ft. intervals, and staggered.

As has been mentioned, the roof of the coal measure consists of 4 to 6 in. of bone. The stripper bares this capping, but does not remove it. This acts as a cover for the coal proper, keeping out both water and air, which, upon long standing of the coal, might cause more or less disintegration. Before the coal is loaded the clean-up gang removes this impurity. In the loading-out operation, furthermore, approximately 1 in. of coal is left in the bottom. This is carefully cleaned and shoveled toward the face between trips, thus exposing the bottom proper and aiding the shovel operator.

In a coal stripping the water problem is second only to that of shovel operation. This problem includes both boiler supply and pit drainage. Of the two the former is perhaps the more important and causes the more trouble and worry. The flooding of a portion of the pit may halt operations temporarily, but some means

always is available whereby the water may be removed. The supplying of feed water to the boilers often is a much more difficult problem. Even though the supply be reliable and unfailing, trouble may arise during freezing weather.

Maintaining smoldering fires along the pipe line is not an entirely satisfactory way of preventing the freezing of pipes, and the usual practice is to blow out the water line with steam from the boiler of the steam shovel. A crooked line with depressions here and there may make this method unsuccessful. Such dips act as traps in which the water collects and freezes, giving much trouble. Even if the ice plug be successfully blown out with steam the pipe may be found to have burst as a result of the expansion in freezing.

Transit Used to Line and Grade Water Pipes

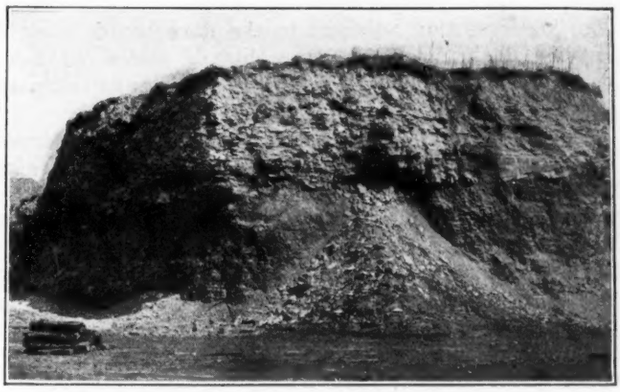
At the Shoveltown stripping not only are the water pipes blown out with steam but they are kept in proper alignment and to grade by means of a transit. These lines also are made as short as possible. The water supply for this operation is dependable, being drawn from two sources. Near the point *A* on the map are three springs, the water from which is pumped direct to the boilers. A reserve supply of 25,000 gallons is maintained in a reservoir tank near this source. For a short time in the winter the springs freeze and cease to flow and in the summer they are likely to dry up.

The supply from the springs is augmented by water pumped to the storage tank from Bear Run. A small steam pump delivers water from the tank to the shovels in the pit or to another tank located at the western end of the property at the point of greatest elevation. This latter tank supplies the town with wash water.

The property lies in two watersheds, both sloping toward the north with the dip of the measures. The water from the main coal body flows into a stream near *A*, and that from the eastern section drains off toward *G*. This drainage is practically natural, so that little pumping is necessary. In the vicinity of *F* a roll in the coal causes the accumulation of approximately 5 ft. of water. When this occurs a 1,000-gallon centrifugal pump held in readiness for such occasions is put to work. This is driven through gears by a 10 x 12-in. steam engine, and is mounted on what is practically a mine-car truck, the flanges having been removed from the wheels. Consequently it may be hauled by a team anywhere on the coal bench.

A tramway 13,000 ft. long extends from the strip pit to the railroad tipple, which is located to the northwest. The grade favors the loads throughout the entire distance, and because the drainage is excellent a good roadbed easily may be maintained. Thirty-pound rails are used within the pit and 60-lb. rails on the main haulage road. The gage is 36 in.

Light rails can be used in the pit because the track is carried on the coal bench, insuring fairly uniform grades and a solid footing and because the coal is transported in a specially-built 2-ton mine car which when loaded in most instances is dropped down the steep grades by gravity. In consequence light rails can be used without difficulty for the pit track. As yet no coal has been loaded from the area east of the neck. Here the grades will be steep and for the most part against the loads, therefore at this point heavier track may be necessary. At the present with the light demand for coal a single 16-ton steam locomotive hauls all the coal, another locomotive of equal size being held in reserve.



SECTION OF SOUTHWESTERN KNOB OF STRIPPING

The cover reaches at this point a maximum thickness of approximately 40 ft. It may be compared with the cross-section shown in the illustration accompanying the title of the article. There the sandstone immediately covers the coal. In this illustration a loose shale is shown between the sandstone and the boney by which latter the coal is covered.

Coal is being loaded out from the southern portion of the main body, the loaded cars being dropped down the grade parallel to the western outcrop. These cars are gradually brought to standstill in the length of the straight track above the point *A*. Here they are made up into trips of from 25 to 30 cars and lowered to the railroad. The number of cars composing a trip is limited by the drawbar pull of the locomotive on the steeper grades of the return journey, in which, of course, only empties are hauled. As loading proceeds from, say, *F* toward *C*, the reserve locomotive may have to be employed. Furthermore, after a cut is made across *AB*, and the track laid, this locomotive will afford means for removing the coal from the eastern section and the eastern portion of the main body.

A turnout is placed on the main haulage road near the approach to the tipple. Here the locomotive sidetracks and the cars are allowed to move onto the tipple by gravity, passing on the way over a bridge, under which is laid the empty track, which is in reality a turnout. After being dumped, the cars move by gravity down under this bridge, where they are coupled into trips.

Each Locomotive Can Haul 400 Tons a Day

When a locomotive arrives at the tipple with a loaded trip a string of empties is waiting, ready for the return. It takes about 45 minutes to make a round trip from the stripping to the tipple and back to the pit, so that one locomotive may haul at the rate of 500 to 600 tons of coal per 8-hr. day. In actual practice, however, incidental delays reduce these figures to about 400 tons.

When the demand for coal increases, two or possibly even three locomotives may be employed on the main haulage, and each of these should be able to accomplish approximately as much as the single locomotive is now doing. Inasmuch as a large reserve of coal has already been uncovered, an output of 2,400 tons per shift might be maintained for several months.

The success of this haulage system in the presence of steep grades and long travel to the tipple is attributed to the use of mine cars in coal transportation. The cars are standard underground mine wagons, except for slight modifications in the construction of the upper sideboard. The lower boards are 8 in. high, the flare boards are 12 in. wide, and the upper sideboards are 24 in. high over all, but are made up in two sections.

The lower section adjacent to the flare board is rigid and is 16 in. wide. Above this is placed an 8-in. board which is hinged to the 16-in. section and collapses inward.

Experience has shown the wisdom of this construction. Shovel operators do not always take time to raise the bucket high enough to avoid grazing the sideboard, which in this manner often is split or broken. With the arrangement above described, if the dipper does not swing altogether too low, all that happens is that the upper sideboard falls inward, but as it may be raised to its normal position again by hand, no harm is done and there is no delay. The car is of composite construction and equipped with plain-bearing wheels.

In flat beds of coal the contractors' side-dump car may be successfully used. Even in such beds, however, it possesses certain disadvantages and mechanical deficiencies. Up until last year, side-dump cars were in use at Shoveltown, and they caused endless worry and delay. Track grades within the pit are in places as steep as 10 per cent, and those along the main haulage roads also are excessive. It is difficult, and in most cases dangerous, to apply brakes to the standard contractors' car.

Furthermore, the great weight of this car, together with that of the locomotive, causes a concentration of load on a short length of track. In carrying an equal tonnage a trip of mine cars would occupy a length of track twice that which a contractors' car would need. The high center of gravity of the contractors' car is the cause of many derailments. Side sway is another of the bad effects of a high center of gravity. It has a tendency to loosen the spikes in the ties, and a poor track results. In dumping on the tipple also the cars must be spotted and tipped, much time being thus lost.

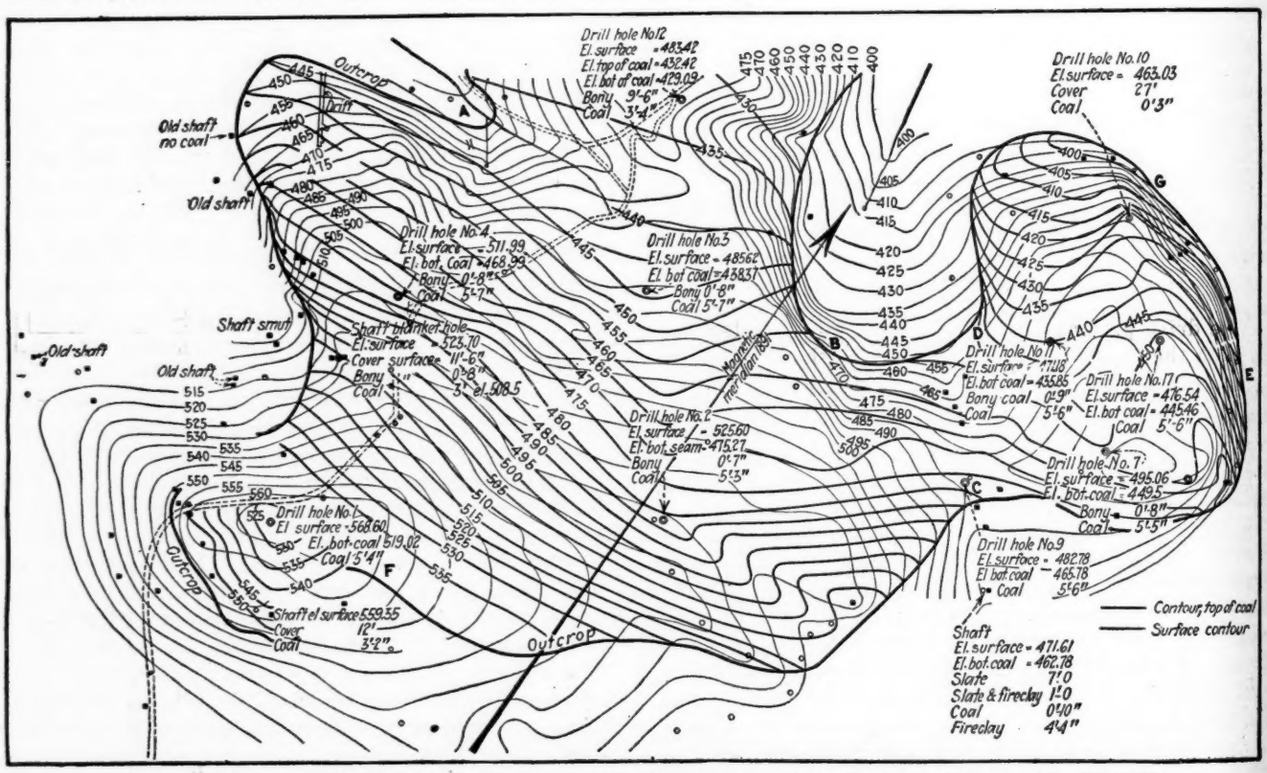
Since mine cars have been used two locomotives haul as much coal as five did when the large contractors' car was employed, and the work is done at an appreciably lower cost, although this may appear unbelievable.

At the Shoveltown pit trips no longer are pushed by a locomotive over any great distance, for this practice was believed to have caused many mine-car drawbars to fail. Since its discontinuance drawbars are less frequently bent or broken. The practice now followed invariably is to make the locomotive lead the train. In going down grades brakes are set on the cars at intervals, and all drawbars are thus placed in tension.

At the present time thirty-three men are employed on this stripping. Of this number, fifteen belong to the labor gang and are engaged in laying new track. This number, however, varies from time to time, being usually less than that stated above, but never more. Nine men are employed on the stripping shovel, four are on the machine itself, four lay track and build cribbing and one digs coal for fuel. The loading shovels are each manned by an engineer and fireman.

In addition to these there are one engineer and one brakeman for each locomotive, one labor foreman and one coal inspector who oversees the cleaning of the product preparatory to loading. With any marked increase in the quantity of coal loaded per shift—say with an output of 2,000 tons—the number of men necessary would not greatly exceed forty, the increase being in train crews.

I wish to acknowledge my indebtedness to S. B. Stine, president of the Stine Coal Co., and to David H. Wilkison, acting field executive at the stripping, who kindly granted me every possible courtesy in looking over the property above described, and also furnished valuable information.



MAP SHOWING CONTOUR LINES OF COAL AND SURFACE, ALSO THE DRILLHOLES AND SHAFTS, AT SHOVELTOWN STRIPPING

Subterranean mining can be conducted with some satisfaction with only a crop line and a mine survey. Strippings, on the other hand, have to be contoured on the surface and on the coal top. To obtain the coal contours is an expensive operation and where the coal probably is level is sometimes omitted. Nevertheless the omission of this detail may spell failure to the enterprise should an unexpected dip occur and make the mining unduly expensive or impracticable. In this case the coal pitched down heavily, but the ground had a general dipping trend in the same direction.

Safety Gates at Cresson Slowly Opened by Rack and Pinion Electrically Operated

CRESSON NO. 9 mine of the Pennsylvania Coal & Coke Corporation, near Cresson, Pa., works two seams of coal, the Lower Freeport and the Lower Kittanning. The cage landing at the Lower Freeport is provided with steam-operated safety gates. At the surface landing, however, the gates which were installed in 1919 are operated by electricity. Though an innovation in this respect they give satisfactory service.

When they were first installed they were equipped with a sprocket and gear, but after a few days the chain links stretched so that they no longer meshed. In consequence, a rack and pinion were provided in place of the gear and sprocket.

The composite gates are of oak with ½ x 2-in. steel-strap hangers, and weigh 250 lb. each. The over-all dimensions are 7 x 8 ft. Between the straps of each hanger is pinned a spool roller which rides upon a 4-in. I-beam. This member is made up of two lengths which join opposite the middle leg of the headframe by bolting

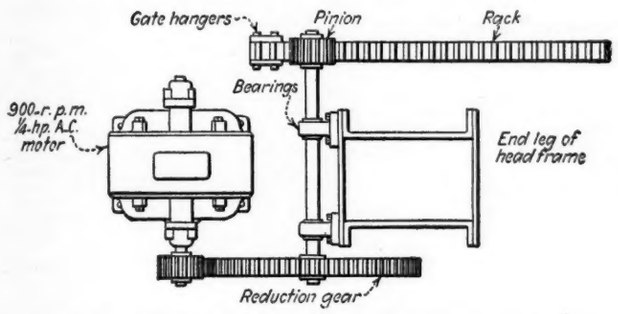


FIG. 1. MECHANISM FOR OPENING SAFETY GATE

A large reduction gear reduces the speed imparted by a ¾-hp. alternating-current motor, which causes a pinion to move a rack at relatively low speed, thus opening the gates of the shaft. The pinion can be slid free of the rack when gate hangers have to be thrown open to admit large material to the shaft.

to a T-bracket which is anchored to the leg. The beams are hinged from V-shaped brackets secured to the end legs of the headframe. With this arrangement either or both beams with the attached gate or gates may be swung out, thus permitting long rails or timbers to be loaded into the cages.

Gate Will Open Wide in Six Seconds

The drive pinions are secured by means of setscrews, so that they may be slid inward from the rack of the gate drive when loading clearance is desired. The racks are supported on the top of the gate hangers. A plan of the gate drive is shown in Fig. 1. The shaft of the drive pinion rests in two bearings which are fastened to a leg of the headframe. On the opposite end of the shaft is located a reduction gear which meshes with a pinion on the motor shaft. The gate will open in 6 seconds. The motor speed is 900 r.p.m., so that it takes 90 revolutions of the motor to open the gate. The gear reduction is such that a ¾-hp. three-phase motor is sufficiently powerful for the purpose. The motors and the rack and pinions are sheltered by wood housings.

As the gates are used only when men or material need to be hoisted or lowered, the electric circuit usually is left open. Otherwise, each time a cage passes

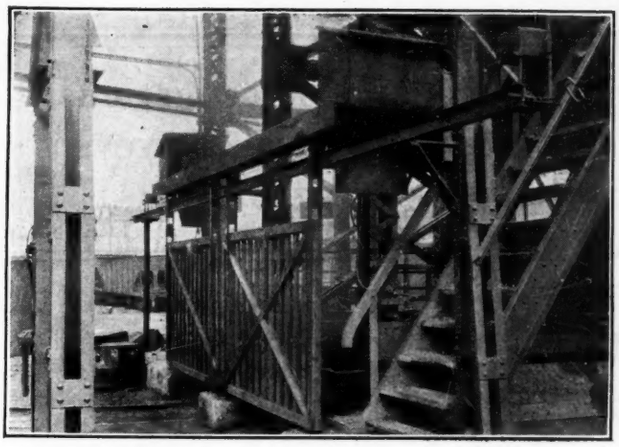


FIG. 2. SHAFT GATES AT SURFACE LANDING

The electrical parts by which the gate is operated are boxed in the two shed-like housings on either side of the shaft. The gates open in about six seconds.

the surface landing on its way to the dumping point, a reversing switch would be thrown, which would momentarily start one of the motors. The period during which the current is closed, however, would be so short that the gate would not be moved.

Still, any difficulty of this kind that might be experienced is avoided by the insertion of two single-pole switches on the hoist platform. When the operator gets a bell for a surface landing, he closes the switches, which are conveniently located at arm's length from him. Indicator lamps within view of the operator tell him at all times whether the gates are open or closed. A schematic diagram of the wiring is shown in Fig. 3. The gates were designed by J. F. MacWilliams, who is electrical engineer of the corporation.

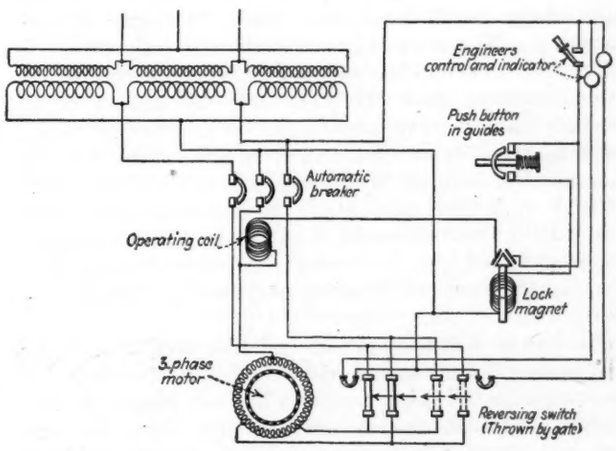


FIG. 3. DIAGRAM OF ELECTRICAL CONTROL FOR GATE

The electric circuit usually is left open, so that when the cage is taken past the landing point to the dump the gates will not start to open. By two single-pole switches on the hoist platform, which are closed by the hoist engineer when a landing at the surface is desired, the electric circuit is closed.

Almost a Thousand Employees of the Davis Coal & Coke Co. in West Virginia recently were given mine-rescue and first-aid training by the crew of U. S. Bureau of Mines Car No. 8. In addition, 111 previously-trained employees took the training. Classes were trained at Dartmoor, Benbush, Pierce, Davis, Coketon, Thomas, Kempton and Henry. Every official of the company at the towns named now holds a Bureau of Mines certificate, and 65.5 per cent of the employees are first-aid men.

Reports and Investigations State Geological Surveys and Mining Bureaus

Coal Reserves in Westmoreland County, Pa.

WESTMORELAND COUNTY, PA., has six coal beds that are now of economic interest. In order of present importance these are the Pittsburgh, Upper Freeport, Redstone, Lower Kittanning, Middle Kittanning and Waynesburg.

The great development of the Pittsburgh bed and numerous exposures of its outcrop have furnished many reliable measurements of its thickness, thus making possible an accurate and reliable computation of the quantity of coal contained in this deposit. No information is available as to the size of mined-out areas in some localities. For these places an estimate of probable depletion has been made, based on age and size of operation or on the difference between original areas and statements of areas remaining unmined.

The Upper Freeport bed contains the greatest reserve within the county. The extensive development of this coal along the Kiskiminitas and Allegheny rivers, the outcrop throughout the county, and drillhole records have furnished a fair number of detailed measurements of its thickness. From data available a fairly accurate map of this bed has been made showing the extent of the thick Freeport coal, the large faulted area in the central and western part of the county and the local faults along the Kiskiminitas River. Because of approaching exhaustion of the Pittsburgh coal, this bed will be first in economic importance within a few years.

Computations show the Redstone coal bed to be of economic value in five townships. A number of measurements from its outcrop and from several mines have made possible a fairly accurate estimate of the tonnage available. A low percentage of recovery has been assumed for this bed, because when the Pittsburgh coal has been mined, the intervening rocks will cave, thus breaking this bed and making its recovery difficult and costly.

The Lower Kittanning coal bed has been considered as of economic importance and its contents computed in five townships, all lying east of Chestnut Ridge. A fair number of measurements are available from its outcrop and from mines along the Conemaugh River. Available drillhole records show this coal to be extremely variable in thickness and of no economic value west of Chestnut Ridge.

Drillhole records show the Middle Kittanning coal to be fairly persistent and of fair thickness in the western part of the county. An average thickness of 3 ft. has been used in eight townships where its existence has been established. A recovery of only 50 per cent has been assumed for this bed, because of meager data regarding its thickness and continuity.

A fair number of measurements have been gathered from the outcrop of the Waynesburg bed and from its development. It has been considered and computed as of importance in Hempfield and Sewickley townships. This bed is broken by many partings, is variable in section, and in places is under shallow cover. For these reasons a low percentage of recovery has been assumed in figuring the minable tonnage. This coal is mined for domestic use in many places because it is readily accessible. Other coal beds also are worked for local use, but as they are not important and little is known of their extent and thickness, they have not been included in the computation of the reserves.

The total area of Westmoreland County is 1,062.6 square miles. The result of computing the coal reserves in this county based on the latest maps, engineering data and methods is shown in the accompanying table.

This gives the estimated recoverable tonnage by beds. The figures are given as computed. It should, however, be distinctly understood that while the acreage of each of the beds has been accurately calculated, the reliability of the average thickness of the coals assumed in the computation of tonnage decreases for the beds in the following order: Pittsburgh, Upper Freeport, Redstone, Waynesburg, Lower Kittanning and Middle Kittanning. Thus, while the figures for the Pittsburgh bed are conservative and probably reliable, those for the Middle Kittanning coal may be much too small or many times too large.

COAL RESERVES IN WESTMORELAND COUNTY, PA.
(In Net Tons)

Bed	Original Deposit	Mined Out	Recoverable
Pittsburgh	1,872,540,000	1,167,687,000	538,300,000
Upper Freeport	2,732,598,000	45,378,000	1,859,200,000
Redstone	324,900,000	2,970,000	163,200,000
Lower Kittanning	729,000,000	972,000	431,700,000
Middle Kittanning	706,644,000	324,000	297,500,000
Waynesburg	15,822,000	810,000	7,600,000
Totals	6,381,504,000	1,218,141,000	3,297,500,000

Unmined Coal in Cambria County, Pa., Is Estimated at 4,278,577,500 Tons

WITH a production averaging around 17,000,000 tons of bituminous coal each year and with a supply underground to maintain this rate of production for the next 250 years, Cambria County, Pennsylvania, ranks high among the great bituminous producing centers in the United States.

Cambria County has an area of 675 square miles and underneath this area are the following seams of coal in the order of formation: E, known as the Upper Freeport or Lemon seam; D, known as the Lower Freeport or Moshannon Limestone seam; C Prime, known as the Upper Kittanning or Cement seam; C, known as the Middle Kittanning; B, known as Lower Kitanning or Miller Peacock seam; A Prime, known as the Clarion seam, and A, known as the Brookville-Seymore seam.

A. B. Crichton, a Johnstown mining engineer, estimates that there were originally 4,669,440,000 tons of coal underneath Cambria County land. Figures compiled since the first records of coal being mined in the county were taken show that 390,862,500 tons have been taken out, leaving a total tonnage of 4,278,577,500 still remaining to be mined.

The first record of mining in Cambria County goes back to 1843, when 973 tons were taken out. In the period from 1844 to 1879, inclusive, it is estimated that 4,000,000 were mined.

AT THE PITTSBURGH (Pa.) experiment station of the United States Bureau of Mines, Dr. Reinhardt Thiessen is continuing the study of the origin and the changes of the cellulose, ligno-cellulose and the resinous matters from peat through the lignite into coal.

Keeping Nickel-Iron Storage Batteries in Condition*

Exclude Foreign Material from Cell Containers — Oil Cell Tops — Before Overcharging or Renewing Electrolyte Bring Potential to Zero — Never Rinse Cells with Water or Discharge Battery at Over Six Times Normal Rate

By M. F. Packard
East Pittsburgh, Pa.

In the nickel-iron battery an alkaline instead of an acid electrolyte is used, and corrosion or disintegration of wood linings and trays will not occur. Current leakage, grounds and short-circuits, however, may result from the presence of foreign material, moisture or electrolyte spray and froth, hence it is just as important with the nickel-iron as with the lead battery that all these substances be kept from the compartment and trays or promptly removed when they appear. Exclusion of foreign material is perhaps more important because the cell containers in this case are metallic and therefore conductors.

To prevent accumulation of dry electrolyte crystals and to make cleaning easier the tops of the cells should be kept covered with a thin coat of special oil furnished by the battery manufacturer. This oil should be carefully kept from the poles and other contact surfaces. In spite of frequent wiping, incrustations of dry electrolyte crystals probably will form on the tops of the cells, and these crystals should be removed about every two months. The trays should be removed from the compartment, cleaned with a steam or air blast (no incrustations being allowed to fall between the cells) and carefully dried before re-installation. The tray terminals should always be marked so as to insure that they will be replaced in the correct position.

Occasionally an insulating paint that is proof against alkali should be applied to the cells and trays. Before this is done all surfaces should be cleansed of grease and dirt and carefully dried to make the paint adhere effectively.

Nickel-Iron Battery Loses Water Fast

Water is lost in this type of battery from the same causes as in the lead accumulator. The quantity thus lost, however, is much greater, and more frequent renewal is required because the ampere-hour efficiency is less and the amount of necessary overcharge appreciably larger. Exposure of a portion of the plate surface and concentration of the electrolyte through neglect to water a battery will have an adverse effect upon its life and performance.

If a battery is being used normally, the water lost should be replaced ordinarily every two or three days. It should not be introduced during charge, as the gassing creates a false level. Except for this precaution water may be added at any time, as the specific gravity of the electrolyte does not change from charge to discharge and consequently is no indication of the state of the battery.

Water may be conveniently added by a semi-automatic filling device furnished by the manufacturer. Overfilling is guarded against by an alarm sounded when the correct level is reached. Ordinary methods of filling are permissible, but care must be exercised neither to exceed the specified level nor to slop water over and around the cells.

Instructions sent out with the battery designate the correct depth of the electrolyte over the tops of the plates. This height easily may be checked by means of an open glass tube of not less than $\frac{1}{8}$ in. inside diameter, with ends made square and even. The tube is inserted vertically through the filler opening till it rests upon the tops of the plates. The exposed end is then closed with the finger and the tube withdrawn. The height of the liquid in the tube will be the depth of the electrolyte over the plates. This test should not be made while the battery is being charged.

Bubbling May Cause Solution to Overflow

Solution will be forced out of the cell during charge if the surface stands at too high a level. This will weaken the electrolyte remaining, add to the burden of care and may result in insulation troubles; hence it is important not to have the level too high. Water for the alkaline battery must be selected and stored just as carefully as has been detailed for the lead battery.

This type of battery will require an occasional renewal of the electrolyte and at times may need special attention to overcome apparent loss of capacity. It should seldom need repair except as the result of an accident or a ground. Any cell that has been damaged should be removed and returned to the manufacturer for repair. It hardly will be worth while to acquire the skill and equipment necessary for field repair work.

Sluggishness and loss of capacity may or may not arise from deterioration of the electrolyte. If such a condition develops, the battery should be given a long overcharge at the normal rate followed by several cycles of normal discharge and charge. It is advantageous always to discharge a battery to zero voltage before overcharging. If normal condition is not restored by this treatment and the specific gravity of the electrolyte is 1.13 or less the solution should be changed.

Preparatory to renewing the electrolyte the battery should be discharged to zero voltage. The trays should be removed from the compartment and the old solution poured out, using a portion for rinsing. Water should never be used for this purpose. The new electrolyte should be introduced as quickly as possible, as the cells may be injured if allowed to stand empty. It will be found advantageous to work on a few cells at a time. Only glass, enamel ware or rubber utensils should be used for handling the electrolyte. The cells should be refilled to exactly the correct height and when so refilled and reassembled the battery must be given a long overcharge at the normal rate.

It is advantageous to procure fresh electrolyte of correct specific gravity from the battery manufacturer or to mix it in accordance with his instructions. A potash

*Companion article to "How the Life and Performance of the Lead Storage Battery May Be Extended by Proper Care," which appeared in the issue of May 4.

solution is conceded to be far preferable to that having a soda base. The specific gravity should be approximately 1.25. Providing the rinsing of cells has been done with the old solution, the new solution upon being poured into the containers will fall only to the correct specific gravity of 1.17 to 1.19. This fall is due to the diluting effect of the old electrolyte which the pores of the plates retain.

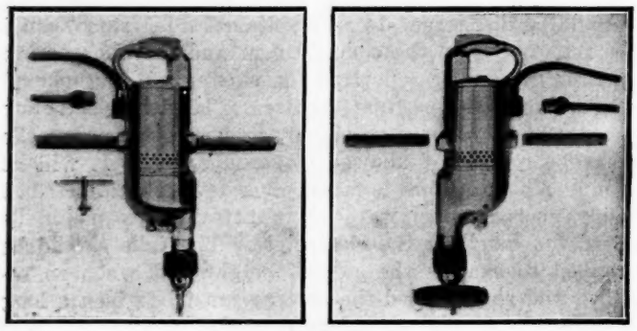
In locomotive duty it is seldom advisable to discharge the battery at a rate exceeding six times normal. If the most severe demand is not kept within this limit the average rate of discharge usually will be too great for best performance and life. If approximately six times the normal rate is exceeded the power output of the battery will actually be decreased because of the high internal loss sustained, and usually nothing can be gained by going to this extreme. Best results will be obtained if the average demand is one and one-quarter times the normal rate or less, because otherwise poor voltage, overheating and shortened life may be expected.

As in the case of the lead battery it is advisable to use an ampere-hour meter as a guide for regulating the charging and discharging of the battery. It is even more necessary in this case because the specific gravity of the electrolyte cannot be employed as a measure of the charge, and terminal voltage alone is an unsatisfactory and unreliable guide.

Portable Electric Tool That Acts at Will Either as Drill or Grinder

COMBINATION tools, while despised by some mechanics, nevertheless have a faculty of "coming in handy." This is particularly true in the small shop, in which as a rule special tools for special purposes are not available. One of the latest tools of this character particularly adapted to the mine machine shop is the combination electric drill and portable grinder shown in the accompanying illustration.

Heretofore it has been difficult to produce a machine of this kind, because of the wide variation in speed demanded by the drill and the abrasive wheel. It is asserted by the makers that this difficulty has been surmounted in the present machine, which will not only drill holes up to ⅝ in. in steel but when fitted with a 6 x ¾-in. grinding wheel will cover average requirements of a portable grinder. Of course, two separate speeds are provided, the change from one to the other being extremely simple and easy to make.



WILL DRILL OR GRIND AT WILL

As will be noted, when grinding the handles are dispensed with. They can be removed by unscrewing. The socket ends of the cable are shown in the illustration. They can be screwed into a light socket and are thus readily connected and disconnected.

The switch lever is located in the top or D-handle, the control being quick and positive at all times. Aluminum castings and ball bearings are used throughout and the tool as a whole, while simple in construction, is yet sufficiently rugged to withstand the rough usage to which it will inevitably be subjected. The motor, which is of the universal type, capable of operation on either direct or alternating current of a given voltage, develops ½ hp. under load. The total weight is 18 lb., the tool thus being light enough to be readily carried about and operated by one man.

At the mine it is in the car shop where many holes must be bored in hard wood, while occasionally steel must be drilled, that a machine of this kind is most useful. This combination drill is being manufactured and sold by the Wodack Electric Tool Corporation, of 23-27 So. Jefferson St., Chicago, Ill.

Would So Slant Cage Hoods as to Prevent Coal or Water from Falling on Cagers

BY R. W. LIGHTBURN
Gans, Pa.

IN THIS era of accident prevention many are the safeguards being applied to the machinery by which shafts are operated. Thus cages have safety catches and the main rope is provided with chain attachments that will come into action if the socket should fail. In shafts where men are hoisted and lowered, an overhead covering of suitable material, commonly known as a cage top, bonnet or hood must be provided.

Why, then, is this hood usually built in such a manner that when the cage is standing at the landing any material falling on it will bounce off into the roadway and thus injure or, at least, hurt the men who may be near the shaft? I have seen some scores of cages, both of wood and steel, and the hoods of practically all of them had their slanting elements so placed that any object falling on them would glance either to the front or rear.

Wherever it can be avoided coal should not be allowed to fall down a shaft, but only with great difficulty can that be prevented. Many ways have been devised for avoiding this descent of materials, but despite the precautions, coal always is falling. Small pieces of coal or rock lodge on the cages and when they are displaced they are apt to fall on the cage traveling in the opposite compartment. Even when the cages are boxed in and the dumps are properly incased, the coal falling from cars with high topping will find its way to the bottom of the shaft and, if the cage top is not properly designed, to the roadways on either side of it.

Nor is danger the only reason for revising the position of the hood. The present design involves quite a little discomfort, because that which will deflect coal will deflect water also and thus make the work of the cagers unpleasant, especially if performed in the intake air, which often is chilly. To many minor accidents at the foot of the shaft I have myself been eyewitness, and frequently the coal bounced for some distance from the shaft.

Bearing these accidents in mind, I would advise as a safety measure that all cage hoods be so arranged as to deflect falling material toward the cage guides. At first it might appear difficult, if not impossible, to alter the position of the hood in the manner indicated, but, where timber is so long as to necessitate the lifting of

the iron sheets of the hood, they readily could be lifted toward the cage guides. A rope could be passed over a pulley and attached to the hood and the material man or cage tender by pulling it could raise the flap and provide room for the emplacement of the timber. With this provision the danger of men falling down the shaft when lifting or lowering the hood would be avoided. Extra long timbers, rails and similar lengthy material generally are slung beneath the cage.

With the suggested type of hood it may appear difficult for the cage inspector to get at any of the chains or overhead rods, but that objection hardly is valid, for the arrangement is employed in all or nearly all European mines and it should be easy to imitate it here. As to the cost of making the change, that can be reduced by doing the work the next time a hood rod has to be straightened.

The accidents caused by the glancing of falling material usually are small. They do not incapacitate the men subjected to them. Nevertheless they are sufficient to cause a delay and may hold up the cage and lower the tonnage.

Proposes New Coal Classification

ORDINARILY coals are classified according to the ratio existing between the volatile matter and fixed carbon that they contain. This is, however, in many respects an unsatisfactory distinction. Prof. S. W. Parr, of the University of Illinois, recently proposed a new basis for classification, in a report before a meeting of the American Chemical Society in Birmingham, Ala. Professor Parr's classification arranges coals in groups according to the percentage of volatile matter that they contain and the heating value per unit of pure coal substance. This arrangement gives fairly definite groups in accordance with the natural characteristics of the coal that are independent of the fortuitous variations in ash or sulphur content.

The unit heating value of coal is determined by Prof. Parr according to the following formula:

$$\text{Unit value} = \frac{\text{B.t.u.} - 5000S}{1 - (1.08\ \text{ash} + 0.55S)}$$

In the above S, of course, signifies sulphur.

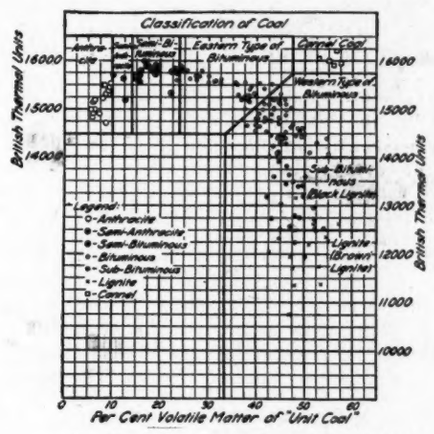
By this method the total heating value of the coal is corrected by the subtraction of the heating value of the sulphur contained. The remainder is divided by the quantity shown in the formula, in order to convert the heat derived from the coal substance proper into that per unit of this material present in the raw fuel. The factor 1.08 times the ash is employed in order to correct for the change in weight of the ash from that actually occurring in the coal to the condition in which it is weighed during analysis. Similarly, it is calculated that correction should be made amounting to 55 per cent of the sulphur content in order to account for that portion of the sulphur in pyritic form that is driven off during ash determination and thus not weighed with the ashes.

Ordinary methods of computing the heat value of the coal substance have been tested by Prof. Parr, but it is found that the results obtained vary considerably for coals from identical mines or beds having various percentages of ash or sulphur. This variation between the float and sink portions of the coal commonly ranges between 125 and 250 B.t.u., but may reach as much as 1,100 B.t.u. Obviously the true coal substance in each is identical and if the method were correct the heat value of this substance calculating from either the pure portion or the tailings from the washer would be the same. Employing the Parr formula, this actual result is found.

Variation of the several samples from the same source is shown by Prof. Parr to be usually only 10 to 50 B.t.u., even though the ash and sulphur content may be quite different. In some instances he has been able to determine the county or bed from which the coal was derived by determining its heat value per unit of pure coal substance.

The investigations conducted have been extended to cover not only coal from Illinois and Indiana but also bituminous coals from South Africa, Brazil and West Virginia, also cannel coal and anthracite.

Prof. Parr proposes the following heating value limit for a simple classification: Brown lignite, heating value



COAL CLASSIFICATION CHART

This chart shows how the coals divide under this classification much as they are already divided in common parlance.

per pound of coal substance, 11,500 to 12,500 B.t.u.; black lignite, 12,500 to 13,500; sub-bituminous, 13,500 to 14,000; Western bituminous, 14,000 to 15,000; Eastern bituminous, 15,000 to 16,000; anthracite, 15,500 to 16,000.

A more satisfactory classification, however, is found if the heat value of the pure coal is made one co-ordinate of the coal's locus and the percentage of volatile matter the other. The accompanying illustration shows the results of applying this classification. It will be noted that each of the several varieties of coal is grouped close together and seldom strays into the field of other types. As a matter of fact, some of the results on sub-bituminous coal appear within the field of Western bituminous. In such a case it is believed that the nomenclature is in error rather than the heat-value measurement.

It is evident that difficulty would be experienced in drawing a sharp distinction between brown and black lignite, between sub-bituminous and the younger varieties of Western bituminous and between bituminous and semi-bituminous. This difficulty is quite sufficient to account for some uncertainty in the placing of a few samples whose characteristics put them near the border line between two adjacent zones.

FRACTIONATION OF LOW-TEMPERATURE TARS from Freeport coals has been completed by the Bureau of Mines at Pittsburgh, Pa., and the oils will be distilled. Data are being compiled for a report of the investigation.

Problems of Operating Men

Edited by James T. Beard

Fireboss' Mark Destroyed by Fall of Roof

Fireboss to Leave Two Marks to Avoid Possible Loss—Must Examine for Dangers Other Than Gas—Marks in Adjoining Places Evidence of Duty Performed

REPLYING to the question asked in *Coal Age*, Mar. 30, p. 538, regarding a fireboss' mark having been destroyed by a fall of roof that occurred between the time the place was examined and the men entered the mine for work, allow me to offer one or two suggestions.

The Bituminous Mine Law of Pennsylvania (Art. 5, Sec. 1) requires the fireboss to leave his mark "at the face and side of every place examined," as evidence that he has performed his duty. The purpose of the law in requiring the mark to be placed both at the face and side of each place is to avoid just what happened in this case. A fall of roof will hardly destroy both marks. This will require a little more time, but is the safest plan to follow.

Firebosses Must Examine for Other Dangers Than Gas

Again, in the same section of the law, the fireboss is required to "examine for dangers in all portions of the mine under his charge," and to place a danger signal across the entrance to every place "where explosive gas is discovered or immediate danger is found to exist from any other cause."

The evident meaning of this law is that the fireboss is not to examine for gas only, but for other dangers that may exist in a place. It is particularly important that he should note the condition of the roof and, finding it weak, prevent any one from entering the place for work till it has been made safe.

In my judgment, had this fireboss complied fully with the requirements of the law, he would have discovered the weak condition of the roof and, on returning to the mine entrance would have reported the place as dangerous and withheld the check of the miner working there. Had he done so the accident would not have happened.

Mayport, Pa. JAMES THOMPSON.

OTHER LETTERS

IN REFERENCE to Joseph Dryna's question as to how a fireboss is to prove that he visited and examined a place, when his mark on the face of the coal has been destroyed by a fall of roof that occurred after he left the place and before the miner entered for work, let me say: If this place is driven in solid coal and was properly examined by the fireboss that morning, it could hardly happen that a fall of roof would occur in the short time that elapsed before the men entered for work.

It is the duty of a fireboss to carefully examine the roof, in every place in his charge, and know whether it is solid or loose and liable to fall. The fact that a fall did occur in this instance and released gas by which the miner was burned when he entered the place for work shows, to my mind, that the examination was carelessly made.

The Anthracite Mine Law (Act. 12, Rule 6) requires the person making the examination to mark the date thereof at the face of each place examined. The law does not specify that the mark shall be made on the coal. Now, taking everything into consideration and having due regard to the requirements of Art. 10, Sec. 4 of the anthracite law, requiring ample ventilation at the face of every working place in the mine, I cannot understand gas firing in his place when this miner entered.

My verdict is, therefore, if the fireboss making the morning examination had complied fully with the anthracite law and exercised his common judgment in examining the roof in each place, his marks would have remained as proof that he had done his work properly.

Hazleton, Pa. JOSEPH LAWRENCE.

WHEN a roof fall occurs, in a miner's place that has been examined by the fireboss only an hour or so before, and gas is released by the fall so that the miner is burned on entering his place a litle later, there must be some good reason that would make this possible.

My idea is that, in this case as in many others, the fireboss was given too large a territory to examine in the time allotted for that work. As a result, he did not make a thorough examination and failed to discover the weak condition of the roof that must have existed in the place.

He may have been a little late in reaching the mine or, perhaps, was detained longer than usual in other places and, in his haste to get back to the shaft bottom in time to make his report, did not examine the roof carefully, but assumed there was no danger from that source.

It may be that the last shot exposed a slip in the roof, which a closer examination would have revealed. Much more time is often required to examine a working place thoroughly, than what is ordinarily at the disposal of a fireboss. As a rule, he must keep on the run and too often his examination of the roof goes little further than a hurried glance and perhaps, one or two knocks with the butt end of a pick to see if it sounds hollow.

Why a Fireboss Should Leave More Than One Mark in a Place

As a fireboss, in examining my district each morning, it has been my habit to mark the date and my initials twice, in each working place examined. I would place one mark on the coal or on the roof close to the face and another further back, perhaps on the rib behind the post.

My aim in doing this is to avoid the chance of one of the marks being lost, as happened in this case. Another reason is that a fireboss' mark will sometimes be erased by a miner or by another official who has a purpose in so doing and desires to make a case out against the fireboss, because of some personal grievance.

The only way I can suggest that this fireboss can prove that he examined the place and marked the date as the law requires, is to show his marks in the two adjoining places. If these are found they would tend to prove that he had examined the other place in question and marked it in the same manner.

WILLIAM DICKINSON.

Lochgelly, W. Va.

REGARDING the instance cited in *Coal Age*, Mar. 30, p. 538, where a fireboss, making his first examination found his section safe and so reported it; but, during the interval preceding the entry of the men for work, a roof fall in one place destroyed his mark, in my opinion, it should not be difficult for him to prove that he had done his duty as required by law.

The bituminous law of the state (Art. 5, Sec. 1) makes it the duty of the fireboss to leave his mark both on the face and the side of each place examined and found to be safe. These marks are required as evidence of his presence in the place on that date.

Now, if a fireboss has done this and his marks appear in every place in his section on that date, I cannot see how the claim can be made that he

had neglected his duty, even if it should be found that both the mark on the face and on the side had been destroyed by the roof fall.

Every one knows that a fireboss has not sufficient time, in making his first examination, to whitewash each working place with date marks. As a brother fireboss, however, let me suggest that it is always well to leave a date mark on a prop a short distance from the face besides the marks required by law.

THOMAS W. PATERSON.

Eriton, Pa.

HAVING fulfilled the duties of a fireboss, I can appreciate the feelings and position of a conscientious man when placed in the situation described in *Coal Age*, Mar. 30, p. 538. The inquirer asks how he can prove that he visited and examined a place where a fall of roof has since destroyed his mark left on the coal.

Naturally, his mark being gone, he cannot look to that as evidence that he performed his duties in compliance with the law. However, if this happened in a room where the face of the coal was near a crosscut leading to an adjacent room, the finding of his mark in that room would appeal to me as strong evidence that he had not failed in performing his task in the first room, which lay in the path of his travels.

On the other hand, if the fall happened in an isolated place apart from others, he would have to depend on his previous record for honest and faithful performance of these duties. The fall having occurred since the miner left the place the previous day, a close examination of the conditions where the fireboss claimed to have left his mark should, in my opinion, convince any mine inspector or jury that the man was entitled to the benefit of the doubt.

NOT ALWAYS POSSIBLE TO MAKE A CHALK MARK ON THE COAL

In my experience as fireboss, I have seen many places where the face of the coal was so wet and greasy that a chalk mark could not be made there. In such cases, I would place my mark on the inside row of posts or on a shovel, pick, ax or other tool, placing them in a conspicuous position against the working face. If I remember rightly the anthracite law does not specify that the mark must be placed on the coal but at the face.

The West Virginia mining law (Sec. 59) requires the fireboss to make his mark on a board placed at the face for that purpose, it being recognized that it is not always possible to make the mark on the coal. Let me suggest that it is always a good plan for the fireboss to make two or three marks in a place, thereby avoiding trouble should one or more of the marks be lost, as in this case.

At times, I have known of a fireboss' mark being rubbed out by a miner, in order to support his claim that his place had not been examined. At one mine where I was appointed fireboss, my friends cautioned me to always put a secret mark somewhere near the face of certain places in that mine, for the purpose of self protection against this fraud on the part of the miner.

Although it has never happened that I had occasion to refer to such secret marks in self defense, let me strongly urge every fireboss to take this precaution, which requires but a few moments more time and is a good safeguard.

Edwight, W. Va. J. W. POWELL.

Making the Miner Responsible

Safety regulations here and in England—Fewer accidents there show effective system—Examination of mines here less frequent and less rigid—Miners must be made responsible for their own safety.

A SHORT time ago, a writer in *Coal Age*, comparing the English system of mine inspection with American practice, advanced some ideas that are worthy of special thought. I refer to the letter of James W. Taylor, *Coal Age*, Dec. 29, p. 1054.

He claimed that greater safety at the working face was insured, in English practice, by approaching the problem in a different manner from that adopted by the operators of American mines. He explained that, in the mines of Northumberland County, England, the question of safe conditions in the working places was not left to the judgment of the individual miner.

FIREBOSSES' DUTIES IN ENGLAND

In those mines, deputies and firebosses were charged with the duty of setting the timbers, in each working place in their respective districts. They must perform this work when making their inspections. Before leaving a place, each must see that there is sufficient timber on hand; or take his measurements and have the needed timber sent into the place.

My experience has been gained entirely in this country and I am unable to judge of the relative conditions in the mines. My information, however, is that we are mining coal here under conditions far more favorable and less hazardous than in England, which I believe is true.

If, as Mr. Taylor states, there are fewer and less fatal accidents in those mines than here, one must naturally conclude that the fault lies in a less rigid and less frequent examination of the working places. This is probably where we fail in respect to making our mines safe.

My belief is that the English plan of making safety inspectors and firebosses set the timbers needed in the working places would surely be abused by the average miner, who would not wait for this work to be done before starting to load his coal. The result would be an increase instead of a decrease of accidents at the working face.

It has always been my theory that the surest way of reducing accidents at the face is to make each miner responsible for his own safety, by requiring him to set such timbers as are needed to make his place safe.

As a further precaution, we should insist on a more frequent and more rigid examination of the working places while the men are at work. There should be greater mine discipline and the authority of our safety inspectors and firebosses should be unquestioned. The adoption of such a plan would in no way relieve the miner of his personal responsibility in keeping his place safe.

It is well known that the time to set a post is NOW. Any delay is a gamble and flirting with death. The excuse of waiting for some one to do the job should not be tolerated. Every miner should know how to set timbers and be given the necessary tools to do the work.

GEORGE EDWARDS.

Pikeville, Ky.

Sinking or Upraising, Which?

Starting an upraise in a mine—Method of timbering when the material is soft—Relative advantages and disadvantages of sinking and upraising.

REFERRING to the question presented in the inquiry regarding the relative merits of sinking or upraising, *Coal Age*, Feb. 2, p. 212, let me say that only the most experienced men must be employed in driving an upraise. When that is done little difficulty should be experienced in the undertaking.

Without knowing the size of this shaft, one is unable to answer the inquiry as intelligently as if the size of the excavation had been given. However, assuming that this is an 8 x 10-ft. shaft, it is my experience that a considerable saving will ordinarily be realized by driving an upraise, instead of sinking from the surface.

UPRAISE MUST BE STARTED ON A GOOD FOUNDATION

When starting an upraise, in a mine, the first round of holes can be drilled and shot from the level or gangway, without erecting any staging. When drilling for the second cut and others to follow, however, it will be necessary to build a stage or platform for the men to stand on while at work. This is constructed of heavy timbers to give a solid foundation.

After passing through the 6 ft. of slate and 4 ft. of sandstone that are said to overlay the coal seam, in this case, it is possible that the material above may be found to be not self-supporting but having a tendency to scale off and fall. In that event, a substantial system of timbering must be adopted.

At this point, it is necessary to make arrangements for building a good loading chute, which must be constructed of strong timbers, and given a proper inclination that will enable the excavated material to be loaded into the

cars, without extra handling. The entire structure can be supported on heavy sills laid on the floor of the entry, or on crossbars set in hitches cut in the solid strata.

The timbering required to support the sides of the excavation, above the sandrock, can generally be rested on long collars set in hitches cut in the ribs. Where it is not desired to continue the timbering, except at points where the material requires support, the same method of setting long collars in hitches cut in the ribs can be employed, wherever the local situation may demand. Care must always be taken to give these first timber sets a solid bearing.

Little difficulty should be experienced in hoisting the necessary drilling equipment, timber and other supplies. This can be accomplished by fastening a chain around the last cap-piece or collar. In the absence of timber, a driftbolt can be wedged into a hole drilled in the strata.

Advantages of Upraising

It is not my purpose to compare the relative equipment required in sinking and upraising. But, in respect to the relative advantages of upraising, it must not be forgotten that the work of drilling need not cease while the excavated material is being removed, as is necessary in sinking. Another important advantage is that the excavated material can be loaded into a car standing beneath the chute and requires no extra handling.

If the dimensions of the proposed shaft exceed what I have assumed; or, range about 10 x 21 ft., I would unhesitatingly recommend the sinking of a shaft, in preference to upraising. When sinking a shaft of this kind, the centercut can be used effectively to ex pedite the work.

When sinking a large shaft over mine workings, the water should always be drained into the opening below, through a borehole in the center of the excavation, and this will also enable the work to be prosecuted with a less number of holes, which means a saving of labor and explosives.

In sinking, owing to the accumulation of dirt and loose material, blind holes are often drilled to no purpose. It is true this accumulation of debris might be cleared and hoisted to the surface; but that is not generally done. Upon one starting to drill, the operation is continued, until the round of holes is completed, barring any unavoidable delay.

R. H. Benney,
Fort Wayne Rock Drill Dept.
Charleston, W. Va.

Novel Method of Sinking a Shaft

Upraising not advisable in soft material—Sinking by aid of boreholes —Hoisting and pumping avoided.

With much interest, I noted the inquiry regarding the practicability of upraising a shaft, under certain conditions, as published in *Coal Age*, Feb. 2, p. 212. It reminds me of an article I published in the *Engineering and Mining Journal*, Apr. 7, 1917, describing a successful operation of this kind performed at low cost.

In that case, however, the rock passed through was very hard and solid. It stood up well without support, which made it safe to employ the method of upraising of which I have always been a strong advocate whenever the conditions will permit of its adoption. I doubt very much whether the method would be practicable in the strata described by this inquirer.

Excavated Material Dropped Through Borehole into the Mine

In this connection, allow me to refer, briefly, to another method that is sometimes employed and which offers many of the advantages of upraising. It is as follows: The excavation is started from the surface and proceeds downward. Before the work is begun, however, a borehole of large diameter, say about 14 in., is sunk in the center of the site of the proposed shaft.

That being done, a strong heavy chain long enough to reach to the bottom, is hung in the hole. In the prosecution of the work, the shaft is "milled down" the full size of the excavation. The material excavated is dropped through the hole into the mine cars and hauled away to be hoisted, or stowed somewhere in the old workings.

Chain Hung in Hole Prevents Clogging of Material

Two things are important, in this method. First, the bottom of the hole must be cut out in the shape of a funnel so as to provide for the more ready escape of the material from the hole. This will greatly assist in keeping the hole clear and preventing the clogging of the material. Should that occur, however, the chain hung in the hole provides a ready means of loosening the material so that it will fall to the bottom.

Aside from the fact that some mucking must be done, this scheme presents most of the advantages of upraising and avoids the disadvantage of that method due to working under a treacherous top, to say nothing of the need of ventilating an upraise. In addition to affording a convenient and cheap method of disposing of the material excavated, the borehole affords good drainage to the shaft and eliminates the necessity of pumping.

C. F. Jackson,
Cleveland, Ohio. Mining Engineer.

Inquiries Of General Interest

Length of Shadow Cast by Sun

Length of Shadow Determined by Altitude of Sun—Sun's Altitude at Noon Equal to the Co-latitude of the Place, Plus a North Declination, or Minus a South Declination

Kindly permit me to ask, through the columns of *Coal Age*, for the solution of the following question: What would be the length of the shadow cast at noon, on the twenty-first day of March, 1922, by a 25-ft. vertical pole, at Nanaimo, British Columbia, taking the latitude of the place as 49 deg. 10 min., north; and assuming the sun's declination, at that time, as 0 deg. 11 min., north?

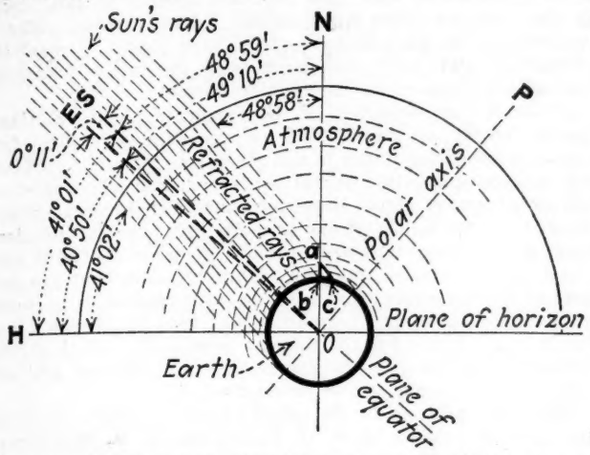
Fernie, B. C., Canada. Student.

The first step in the solution of this problem is to calculate the true altitude of the sun, at noon, for the given latitude and declination. At the time of the equinoxes, or when the sun is on the equator, its true altitude is equal to the co-latitude of the place, which in this instance is 90° — 49° 10′ = 40° 50′. When the sun is north of the equator, however, its altitude, at noon, is increased by its declination, which is here given as 0° 11′, making its true altitude, in this case, 40° 50′ + 0° 11′ = 41° 01′.

Now, referring to the accompanying figure, which represents a meridian plane passing through the place of observation, *O* is the center of the earth, *OP* its polar axis and *OE* the projection of the celestial equator on this plane, while *OH* is the intersection of the meridian plane with the plane of the horizon. In the figure, the vertical 25-ft. pole is represented by *ab* and its shadow by *bc*, parallel to the plane of the horizon. The position of the sun is indicated by *S*, the zenith by *N* and the north pole by *P*.

The sun being at, practically, an infinite distance from the earth its rays are parallel, as indicated by the light dotted lines in the figure. As these lines pass within the atmosphere of the earth indicated by the light dotted curved lines, they are refracted through an angle depending on the altitude of the sun. For an altitude of 41° 01′, this refraction of the sun's rays is practically 1′, which must be added to the true altitude of the sun at noon, to obtain the observed altitude, for calculating the length of the shadow cast.

Except in special cases, the correction for parallax or refraction is so small that it need not be considered. It should be stated here that the length of shadow cast by the sun, for any time during the day can be calculated at once, by measuring the altitude of the sun with an engineer's transit. This is the observed altitude and is always greater than the true altitude, by the amount due to the refraction of the rays in passing through the atmosphere.



DIAGRAMMATIC SECTION CUT BY A MERIDIAN PLANE

In any case, having found the observed altitude of the sun, subtract it from 90 deg. and multiply the vertical height of the pole by the tangent of that angle. In this case, the true altitude of the sun, at noon, for the given latitude and declination, being 41° 01′, its observed altitude is 41° 02′; and the complement of this angle is 48° 58′. Hence, for the length of the shadow cast at noon by a 25-ft. vertical pole, we have $25 \times \tan 48° 58' = 25 \times 1.149 = 28.7$ ft.

Examination Questions Answered

Examination, Foremen and Assistant Foremen, Sixteenth Anthracite District

(Hazleton, Pa., April 11-14, 1922)

QUESTION—*What means are necessary in order to properly conduct an air current to the working face? Which is more easily ventilated a hole being driven up the pitch or one dipping and why?*

ANSWER—Beside the usual doors, stoppings and air bridges, required to conduct the air current through a mine, it is often necessary to erect lines of brattices consisting of boards or canvas nailed to posts to conduct the air current beyond the last crosscut or breakthrough and make it sweep the working face of a breast, chamber or heading.

The question of whether a rise or dip heading is more easily ventilated will depend on whether the place is generating marsh gas or blackdamp. If the heading is generating marsh gas, it is more easily ventilated when driven to the dip than when driven to the rise, since this gas will tend to rise from a dip working, but will accumulate at the face of a pitch where it is not easily dislodged.

The same is true of blackdamp which will gravitate down a pitch, but accumulate at the face of a dip heading. Therefore, where blackdamp is generated in a heading, the ventilation is less difficult if the place is driven to the rise.

QUESTION—*What is the amount of rubbing surface in an arched airway 2,000 ft. long, the top being semi-circular; the height from the floor is 10 ft. and the width 14 ft?*

ANSWER—The height of the crown of the arch above the floor being 10 ft., and the span of the arch 14 ft., the vertical sidewalls are each $10 - \frac{1}{2}(14) = 3$ ft. in height. The perimeter of a semi-circle having a diameter of 14 ft. is, $\frac{1}{2}(3.1416 \times 14) =$ say 22 ft. The total perimeter, including the semi-circular arch, the sidewalls and the floor of this airway is then $22 + 3 + 3 + 14 = 42$ ft. The rubbing surface of this airway is, therefore, $2{,}000 \times 42 = 84{,}000$ sq.ft.

QUESTION—*If an airway 9 x 6 ft., in section, has a total rubbing surface of 54,000 sq.ft., what is its length?*

ANSWER—The cross-section of this airway being a rectangle, its perimeter is $2(6 + 9) = 30$ ft. Then, for a rubbing surface of 54,000 sq.ft., the length of this airway is

$$54{,}000 \div 30 = 1{,}800 \text{ ft.}$$

QUESTION—*How large should a passageway be that is used both by persons and for transportation?*

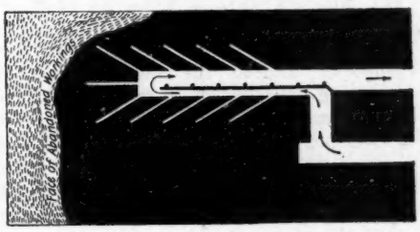
ANSWER—A haulage road that must be used by men going to and from their work should be driven wide enough to allow a safe clearance on one side of the road, in order to enable persons to pass the loaded cars safely. The required width of the entry will depend on the size of the cars in use. In any case, the clearance space should not be less than 2½ ft. between the side of the car and the rib.

QUESTION—*To what extent should a first-aid man attempt to render assistance in a mine?*

ANSWER—In the case of accident, first aid should only be rendered an injured person to the extent that will make him more comfortable if bones are broken; stop the flow of blood if an artery has been severed; and avoid collapse by removing the patient to better air and administering artifical respiration if unconscious and suffering from shock. While waiting for the doctor, no attempt should be made to act his part, further than doing what is necessary to preserve life and prevent further injury and loss.

QUESTION—*In driving a place towards water, what precaution is necessary and what width of hole would you drive?*

ANSWER—Every precaution must be used to avoid a sudden inflow of water that would flood the workings. When approaching a place filled with water, a single heading should be driven not exceeding 10 or 12 ft. in width. A drillhole should be kept at least 20 ft. in advance of the face and slant holes should be drilled in each rib making an angle of about 30 deg. with the heading and 8 or 10 ft. apart, as shown in the accompanying figure. A close watch must be kept to detect the first appearance of water seeping through the strata at the floor. Wooden plugs must be kept in readiness to plug any hole tapping the water.



HEADING APPROACHING OLD WORKS

QUESTION—*A charge of powder or other explosive, in coal or rock, has missed fire; how should the charge be withdrawn or the hole reopened?*

ANSWER—No attempt should be made to withdraw the charge in case of a misfire. In that event, another hole should be drilled about a foot from the first and a new charge inserted in this hole and fired. Care must then be taken to ascertain if the charge in the first hole is exploded by the firing of the second blast. If that is not the case, the unexploded cartridge must be sought in the broken coal dislodged by the shot and the greatest care must be exercised to avoid possible accident.

Book Reviews

Insecurity of Coal Miners' Earnings

CAREFULLY selected figures and a well-ordered argument distinguish Louis Bloch's booklet entitled "The Coal Miners' Insecurity; Facts About Irregularity of Employment in the Bituminous Coal Industry of the United States," written on behalf of the Department of Industrial Studies of the Russell Sage Foundation. A preface is written by Mary Van Kleeck, director of the department of industrial studies of that Foundation.

Though the figures are chosen without noticeable bias and the argument is well ordered, the investigation leads only to false conclusions. For instance, the writer of the preface declares that irregularity of employment is the reason for the number of strikes. Those who are in the industry know that outside of the biennial adjustment periods, which always tend to be characterized by strike activity, most strikes occur when employment is steady. Repeated strikes, for any reason or none whatever, occur when the coal business is flourishing and railroad cars are plentiful. It is not brooding over irregular work that causes strikes but always the hope of getting higher and higher wages. Some would say it is a desire to graft, and not a real grievance, that is the cause of the strikes in the coal industry.

As the preface writer is about to turn the matter over to Louis Bloch she says, "Not the wage rate only but the opportunity to earn wages regularly is vital to the miner." The mine worker in the bituminous mines when he works will get $5.25 a day and over, should the wage reduction be 30 per cent. His fellow in the same state working on roads, in metal mines, cement works and other like labor, is getting $2.50 or less for eight hours. When a man is getting twice as large a wage as his fellow why should he be disposed to strike, even though he can show he is getting a third less time? Four days a week at $5.25 is $21, and six days a week at $2.50 is $15. With all his unsteady work if his wage is lowered he will be getting in normal years 40 per cent more than his more regular neighbor, and as the idle time is his own he can use it in doing other work or in the pleasures of the hunt or of the stream.

Neither Mr. Bloch nor Mary Van Kleeck has anything to say as to unemployment in other industries. They leave it to be inferred that there is none. Reading the booklet one would imagine that other industries were steady and that the miner has an unfortunate monopoly on unemployment. But this is far from true even in prosperous times. Beyond question other industries besides mining are overdeveloped and seasonal, and most of the unskilled men engaged in them drift around from job to job except in times of depression, when they may have to do entirely without any work. The miner, however, always has some work in his own industry.

Mr. Bloch says the worker in the small mine has less steady employment than in the large one. Very true. At times, indeed, his opportunity to work may be inadequate to supply his living needs, but the man in the small operation has the advantage because, as he has few fellow laborers, he has few rivals when, his mine being closed down, he has to look for work on the farm, or at road mending or road building or for some other employment. At large mines, which are frequently in inaccessible places and which have many men who cannot all find work of another kind, the uncertainty of employment is more severe in its effect if somewhat less frequent in its occurrence. It is unfortunate that we do not have figures showing how many of the non-mining days of the miner are spent in toil which brings him profit.

However, it may be conceded that there are parts of the coal field where the work in small mines is not, and cannot be, well supplemented by labor of any other kind. It is true, as the Illinois and Indiana operators allege in Mr. Bloch's quotation, that "the men are subject to call," but do they always come when called? They do not. Many men during the slackest part of the year absent themselves altogether, and their connection with the mines is solely that of contributors to labor-union funds.

With all due respect to F. G. Tryon, of the U. S. Geological Survey, we cannot feel assured that his figures for the capacity of the mines is not excessive, for mine workers will not continuously work at top speed, and when patriotism or a coming strike does not spur them to accomplishment they tend to lay off one or more days a week. Besides, there are holidays that are provided in union contracts and are always observed and many other holidays that are not part of the agreement but are kept with regularity by some of the mine workers. It would appear that Mr. Tryon's is a fairly large figure for the present productive ability of the country, even though the mines, if fully manned and all running to capacity, could produce more.

The statement as to the effect of car shortage made in the *Survey Graphic* by F. G. Tryon and W. F. McKenney, also of the U. S. Geological Survey, and quoted by Louis Bloch, needs amplification. There is much profound truth in the statement that "No doubt we need more cars, but simply increasing transportation facilities will not mend the broken year of the coal miner. . . . More cars . . will not sell more coal. . . . Car shortages have occurred not infrequently; but it is a curious fact that rarely have they curtailed the actual consumption of coal." That is true; yet car shortages are the indirect cause of the broken year, for when they occur there is a natural rise in prices, new mines are opened, old mines try to increase production and the hunt for men causes an increase in the working forces, resulting in the excess of men so greatly regretted by all who study the coal industry—and who has not studied it? As a matter of fact, both strikes and car shortages greatly increase the number of men employed and thus make the year of the miner short several days.

Mr. Bloch's statement of earnings for 1921 is based on Jett Lauck's declarations. The sources of information of that economist are known to be vitiated by omission of yardage and deadwork, and Mr. Bloch in accepting them has not a word to say about the fact that these yearly earnings are low only because the men in the union districts, which alone are cited, failed to meet the wage scales in non-union fields and so surrendered their opportunities to share proportionately in the tonnage mined and shipped to market. By holding out for wages above those paid in non-unionized districts and in other industries in their own mining regions they deliberately deprived themselves of the opportunity to mine their natural percentage of the whole production of the country.

As for the quotation that the author makes from Prof. Ogburn, to the effect that a fair health-and-comfort budget in January, 1920, would have been $2,243.94 a year, its inclusion in this story is permissible only because it forms part of the union's argument. In itself it is less than nothing, and it represents the workmen in the United States as pretty generally "submerged," for only the more skilled men or men having to meet city rents and expenses are in receipt of the wage advocated by Prof. Ogburn as a minimum.

THE E. E. WHITE COAL CO., at Glen White, in the Winding Gulf district of southern West Virginia, is operated non-union. The 242 miners in the Glen White mine of this company averaged $1,997.95 in earnings during 1921 for 192 days' work, while the 247 miners at the Stotesbury mine of the company averaged $1,871.84 for 200 days' work. Machine cutters earned $158.02 for the last two weeks in March, while machinists made $93.60; wiremen, $80.73; motormen, $78.39; trackmen, $70.20; bratticemen, $69.30; plant repairmen and blacksmiths, $75, and other wages were in like proportion for the last two weeks of March.

THE FIRST-LINE TRENCHES of prosperity are the excavations for new buildings.—*Asheville Times.*

Two Viewpoints on a Moot Question

UNDER the caption "Mutual Contract Responsibility Remedy for Coal Mine Strikes," the following editorial appeared April 28 in the *Chicago Journal of Commerce:*

"The recurrent evidence of the helplessness of the 'average man' who in the aggregate is called 'the public,' is made clearly manifest in the oft-repeated inquiry 'What can be done about it?' Nor can the responsibility of providing the remedy be evaded except at the cost of accepting the burden that comes from shirking an unpleasant task.

"To coal operators as with other large employers of labor when similar difficulties are by them faced, the answer seems very simple and direct. Do not put labor outside the laws, either statutory or economic, that govern others. Make organized labor responsible for its acts. The spirit of true democracy contemplates that while absolute liberty, not license, shall be guaranteed, the individual must assume responsibility within the law for his every act. Why should any group be free of this individual restriction? To indicate particular groups that for any reason shall be indulged is discriminatory. All of the coal-mine labor difficulties of the past several years as well as the present immediate situation spring directly from this cause. Twenty five years' experience with joint collective bargaining in the Central Competitive field proves this beyond any doubt whatever.

"In the early days of this relationship it was recognized that contract responsibility was mutual. Today's arbitrary manifestations of coal-mine labor are only the result of its capitalization of the growing legislative and public indulgencies that have been granted from time to time during the past six or more years.

"Unrestrained power breeds intolerance and disrespect for the rights of others.

"Recall the injunction against the miners in October, 1919. What did it avail? Was the public interest helped or injured as a result of this flagrant disregard of the judiciary?

"Recall the compromise adjustment made between the United States Attorney General and the officers of the United Mine Workers, in direct opposition to the recommendations of United States Fuel Administrator Garfield.

"On the basis of this adjustment the miners were guaranteed immunity from court contempt and were requested to return to work at a very substantial wage increase, an advance which Dr. Garfield felt was wholly sufficient for total adjustment. Question of a further increase was, however, to be considered by a commission, appointed by the President, who granted still further increases. We had the assurance of Dr. Garfield that this additional award was absolutely unnecessary for equalization of earnings with living cost.

"Certainly the flagrant vacation of the coal commission award and the forcible demand for further advance within four months makes absolutely clear the necessity for establishing responsibility. This one contract breach cost coal consumers of the country well over $100,000,000.

"Although the remedy of making labor organizations equally responsible under the law seems simple as a statement of essential equity it must be recognized that its application will be difficult and absolutely impossible while politics joined to public indifference shall permit the continuation of indulgences and of discriminatory legislation to the mine workers or to the entire group of organized labor that, regardless of noisy allegations, represent a very small percentage of the working force of the county and a very much smaller part of the total number of coal consumers who must pay the bills resulting from such indulgences.

"Both statutory and economic laws operate directly against coal operators with full force and effect.

"By reason of such fact, the capital invested in coal-mine operation throughout the past fifteen months has gone forward at a substantial loss in practically every bituminous district.

"Meanwhile, previous methods of joint interstate wage bargaining have been legally condemned and with outstanding indictments still pending there is no way in which a new wage scale may be negotiated except by each state group, within its own state borders and under its own state laws.

"This procedure, however, is forbidden by the officers of the international organization of the United Mine Workers.

"Could such a situation have developed or would present conditions with respect to the mine labor situation prevail if the United Mine Workers of America were made legally responsible?"

Ellis Searles Unearths Another Clamor

The following communication from Ellis Searles, editor of the *United Mine Workers Journal,* was sent under date of May 1 to every Senator and Representative in Congress:

"Newspapers all over the country are clamoring for a thorough investigation of the coal industry, with a view to finding out just what should be done to correct the many evils with which it is afflicted. The press has at last come to realize the deplorable condition of the coal business, from the mine to the coal bin. There is something wrong with it, but no one has yet been able to point out a definite method for the correction of these things. But the present strike has brought the entire matter to a focus. People are wondering why it is that the miners are compelled to undergo the hardships of a strike. They want to know why the country must from time to time submit to a shutdown of the mines while the various interests in the industry fight out a controversy. The public thinks, now, that it is time to do something to render unnecessary future strikes and lockouts. They want a steady flow of coal from mine to consumer, and they know they cannot get it so long as the industry remains in its present unorganized, disorganized, chaotic condition.

"The press, the public—everybody—realize that first of all there must be a full and complete investigation and study of the coal industry before it will be possible for anyone to map out a safe and sane policy for its conduct in the future. Nothing could be accomplished through a haphazard investigation that would merely skim the surface of the trouble. Any investigation that is undertaken must go to the grass-roots of the industry and uncover everything. There should be a study of wages, prices, profits, costs, supply, railroad rates and everything else. Everyone connected with the industry, including miners, operators, dealers, brokers and consumers, should be required to lay before the investigating commission every fact and bit of information that could throw a particle of light on the problems involved.

"Coal operators and coal companies should not be permitted to hide any of their books, papers or figures, as they have done in the past and are doing today. No one has as yet been able to ascertain from operators and coal companies the truth about their costs, their prices and their profits. Whatever legislation is enacted on this subject should not fail to take this fact into account.

"There is no secret about miners' wages. Everybody knows what they make. It will be easy to find out how much it costs a miner to keep his family. It will be easy, also, to learn all about the way a miner must live, his surroundings, his environment and his possibilities, and all of these things should be taken into careful consideration in the formulation of legislation to meet the case.

"A strike or a lockout never settles anything permanently. They simply act as a quieting powder when it is administered to a suffering patient. The coal industry can be stabilized if the proper method is followed. This cannot be done through compulsory arbitration, nor can it be done through airtight government control, such as existed during the World War. It must come about through the medium of the discovery of facts and the application of justice and common sense. Congress has a duty to perform along that line."

Mines Buy Steadily During Strike Period

IMPROVEMENT and rehabilitation of coal-mining properties in various fields continues steadily through the strike period. Two Chicago engineering concerns alone report contracts totaling about $200,000, involving, in most cases, the re-equipment of mines to increase their capacity and improve their product preparatory to the coal campaign that will follow the strike.

The Sargeant Coal Co., at Newburg, Ind., will have ready for operation by June 1 a modern steel tipple fully equipped with screens and loading booms for three tracks. Before the cessation of work by miners this mine was producing about 800 tons a day. When operation resumes the plant will be able to handle 1,200 or more tons. The shaft will be reamed to increase the size of the cages and allow the use of larger pit cars. The Krehbiel Company are the consulting engineers. The same firm is installing three loading booms for the Harrisburg Coal Mining Co. at Harrisburg, Ill.

Four installations are now in progress in Ohio, Kentucky, West Virginia and Pennsylvania under the direction of Jacobsen & Schraeder, Inc. The Kentucky Block Fuel Co. is getting a tipple, preparation plant and dump house to make and load three sizes of coal on two tracks at its mine at Jonancy, Ky. The output of this mine will be about 800 tons a day. At Hopedale, Ohio, a tipple and dump house are in process of erection for the Coal Land Development Corporation at a cost of approximately $35,000. This is a strip mine with a daily production of about 1,600 tons.

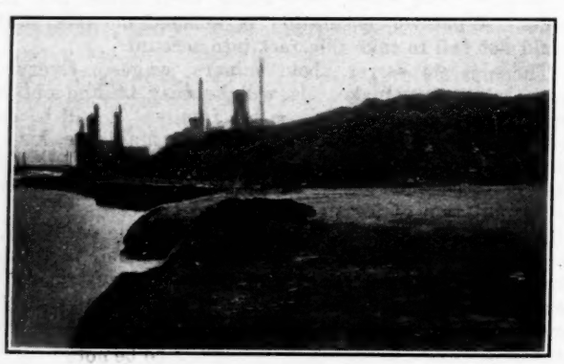
A complete preparation, storage and loading plant is now under construction at the new mine of the McKeefrey Coal Co. at Chestnut Hill station, West Virginia. The steel tipple will contain horizontal picking-table screens and two loading booms. The main tipple beside the railroad is about 600 ft. from a river dock, where another and smaller tipple is to be raised. River coal from the main tipple will be carried by belt conveyor to the new tipple, where three sizes can be made as the fuel is loaded into boats. The maximum output of this mine will be about 2,500 tons a day.

At Venice, Pa., a $50,000 steel tipple is practically completed for the Gilmore Coal Co., whose mine is designed for the production of more than 2,000 tons a day.

Swollen Waters of the Mississippi Wash Away Portion of Coal Storage Pile

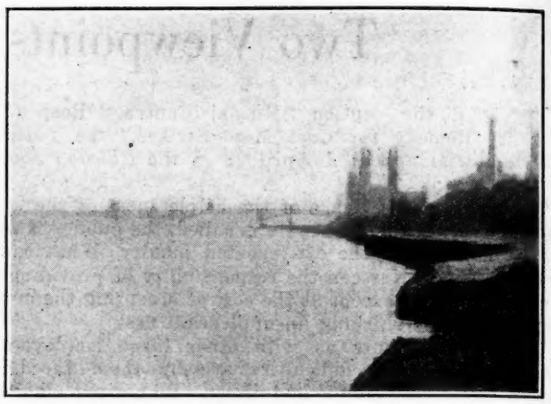
EXCESSIVE rains throughout the Middle West have caused many of the streams, both big and little, to rise, some of them reaching almost flood stages. While the Mississippi has not exactly "gone on the rampage" its waters are washing into the banks at certain points and causing more or less destruction in some places.

The accompanying illustrations show a portion of a coal pile containing 17,000 tons belonging to the Union Electric Co., and stored on the bank of the river at St. Louis. This view was taken looking downstream. The plant of the electric company may be seen in the distance while still farther away appears a portion of the Eads Bridge.



STORED COAL IN DANGER FROM RIVER

Power-plant coal stocked on the bank of the Mississippi in St. Louis. Some of this pile had to be moved or it would have been liable to wash away.



ANOTHER VIEW OF THE STOCKPILE

Note the hole or bay washed in the bank. Beyond is the power plant, while the Eads Bridge is faintly visible in the distance.

It is understood that a small portion of this stored coal was lost through caving of the river bank. Steps were immediately taken, however, to move the coal thus endangered. The river stage at the time the photographs were taken, on April 16, was 35 ft. and it was thought that it had not yet attained its crest and might do still further damage.

Congressional Committees Hear Coal and Oil Compared as Fuel for Ships

THE relative merits of coal and oil as fuel for vessels was discussed in the hearings before the Senate Commerce Committee and the House Merchant Marine Committee in consideration of the ship subsidy bill. H. L. Ferguson, president of the Newport News Shipbuilding & Dry Dock Co., said there was a saving of from 7½ to 10 per cent in the use of oil over coal.

T. H. Rossbottom, manager of the U. S. Lines, said that if the cost of oil per ton were approximately the same as coal there would be a saving of 15 per cent in the use of oil over coal. The price of oil had been and was now higher than coal. His company operates both oil- and coal-burning vessels and finds more trouble with coal than oil. He testified that the cost of oil is $4 a ton and that of coal $2.75 a ton. There are no boiler repairs on oil steamers, he stated, as there is constant heat in the furnace, while in coal-burning ships there is a sudden contraction and expansion as the door of the furnace is open to feed coal. He also stated that the ship operator has less trouble operating a steamer using oil than coal, and that there is less deterioration of boilers and a smaller crew required. He also stated that oil firemen were of a higher type of men than those of coal-burning vessels.

Director of Research Merrill, of the Shipping Board, was not inclined to say that oil had an advantage over coal in propelling cargo ships. He quoted a steamer captain as saying that oil and coal were on a par. Of the Shipping Board fleet 75 per cent of the vessels burned oil, whereas only 10 per cent of the British fleet burned oil. He testified that greater steaming power can be obtained from Pocahontas coal than other coal, and that a ton of coal occupied 45 cu.ft. of space and a ton of oil 38 cu.ft. Coal-burning ships now obtain fuel at reasonable prices, he testified.

Mr. Merrill gave current coal and oil prices at various ports as follows, per ton:

	Coal	Oil		Coal	Oil
New York	$6.75	$8.38	Honolulu	$13.00	$12.21
Norfolk	5.50	8.38	Australia	8.25	....
Hamburg	11.38	15.18	Durban	9.18	....
Gibraltar	7.93	15.75	Bombay	11.40	45.10
River Plate	8.36	18.00	Naples	8.58	....
San Francisco	12.00	9.24	Brest-Thorp	....	15.75
Manila	11.00	16.50	Baton Rouge-New Orleans	5.50	1.15

The Weather Vane of Industry

News Notes Chronicling the Trend of Industrial Activities on Which Depends the Immediate and Future Market for Coal

IMPROVED industrial conditions are gradually translating unemployment into employment, according to the U. S. Department of Labor industrial survey for the month ending April 30, 1922. "Despite a few disquieting industrial features," the department's announcement states, "America is surely righting herself. April recorded an upward movement with industrial lines broadening out, which will show increased activity in May.

"There was a pronounced increase in employment in iron and steel and their products, and in metal and metal products. Vehicles for land transportation recorded 10.4 per cent increase in employment over March. Employment increased in chemicals and their products; stone, clay, and glass products; and lumber and its finished products.

"Textiles and their products showed 7.6 per cent decrease in employment over March. There was a decrease in employment in food and kindred products, due to seasonal operations. Leather and its finished products, paper and printing, tobacco manufactures, and railroad repair shops all showed a slight decrease in employment.

"There is an expansive building construction program on. The demand for carpenters, bricklayers, plasterers and all classes of workmen engaged in the building trades is equal to the supply, and at some points is even greater than the supply. The optimistic attitude of the farmer is reflected in the unprecedented demand for high-class farm help."

This monthly survey is based on actual figures taken from the larger industrial payrolls of the country. The statistics on which its computations are based are gathered each month by the department's special agents in sixty-five principal industrial centers. In all, 1,428 firms each usually employing more than 500 workers, or a total of 1,600,000, are comprised in the survey. On April 30 these 1,428 firms had 11,875 more employees on their payrolls than they carried on March 31, an increase of 0.74 per cent.

Of the 65 cities, 40 report employment increases during April over March, with percentages of increase varying from 0.25 in Cincinnati, Ohio, to 16.8 in Chattanooga, Tenn. Twenty-four cities report employment decreases during April over March, the percentages of decrease being from 0.05 in Louisville, Ky., to 69.9 in Lawrence, Mass.

Middle West Nearing Normal

Employers generally express the opinion that conditions are nearing normalcy in the Middle West. Nearly all industries are taking on additional help. Building contractors are calling for carpenters, painters and other help. The iron and steel industries are gaining. Farm implement manufacturies are showing a decided revival in operations. Employment in the automotive industry is steadily increasing. The 19,000 clothing workers in Chicago suffered a reduction in their forces of 5.6 per cent. The coming of spring reduced the operations of the packers, but flour mills made quite a gain. Public improvements and farm activity are absorbing many unemployed.

INDUSTRIES REPORTING AN INCREASE IN EMPLOYMENT IN APRIL, 1922

Industries	Amt. of Inc.	P.c. Inc.	Weight*
Vehicles for land transportation	20,556	10.4	13.5
Stone, clay and glass	1,166	7.8	1
Iron, steel and their products	20,562	5.7	23.5
Metal and metal products	1,847	2.1	5.5
Chemicals and allied products	1,328	1.8	4.6
Lumber and its manufacture	127	.5	1.5
Total	45,586		

INDUSTRIES REPORTING A DECREASE IN EMPLOYMENT IN APRIL, 1922

Industries	Amt. of Dec.	P.c. Dec.	Weight*
Leather and its finished products	4,540	8.2	3.1
Textiles and their products	18,793	7.6	14.2
Liquor and beverages	64	7.3	.05
Food and kindred products	5,204	3.96	7.8
Paper and printing	947	1.9	3.06
Miscellaneous industries	3,013	1.1	16.4
Tobacco manufacturers	155	.5	1.9
Railroad repair shops	995	.31	3.8
Total	33,711		

*Per cent employed April 30 to total reported employed in 14 groups.

Mid-Atlantic Improvement General

Industrial gains in operations in the Middle Atlantic district during recent months extending to practically all lines of industries, together with the gradual increase in employment, have given encouragement. A consensus of opinion indicates that the present upward trend has characteristics of permanency. Considerable activity is evident in the building industry, with increased gains in employment in all building trades. The iron and steel industry, metals and machinery and some branches of the textile trades show a gradual improvement. Curtailment of forces in the railroad industry has been made at some points. Additional gains have been made in the number of workers employed; in fact there has been an encouraging steady decrease in unemployment during the past two months.

New England Still Optimistic

An optimistic feeling still prevails in the New England district as to improvement in the near future. Unemployment and part-time employment affects all lines except the building trades, which showed marked improvement during the past month. There has been some improvement in the metal trades. Unemployment is widespread in textiles; besides many plants being closed, part time is prevalent in those that are operating. Shoe factories are now running full time on next season's business.

South Central Idleness Drops

Actual payroll data from the principal cities in the South Central district indicate considerable increase in employment. The textile and lumber industries show a remarkable improvement. Cotton planting is progressing slowly, with indications of an increase of acreage. From an employment viewpoint the lumber situation is more satisfactory. There are less unemployed men around the sawmill villages than there has been for some time. The demand for lumber is good and indications point to a heavy demand for Southern pine this season, encouraging manufacturers to increase production.

South Atlantic Gains Continue

A gradual increase in employment is shown in all industrial lines in the South Atlantic district. Seventeen railroads report a gain of 9,176 in the number of employees during March. Increased building construction is helping to relieve the housing shortage and giving considerable employment to building trades. Textile mills show a slight decrease in the number of employees. A substantial increase in employment is to be noted in the chemical industry.

Keep Bins Well Stocked with Coal

(Editorial from Electrical World, May 6, 1922)

ALTHOUGH more than five weeks have elapsed since the coal miners went on strike, we have yet to hear of an electric public utility which has been handicapped through lack of coal. Indeed, the demand for coal has been so small that many non-union mines which would normally be in operation are shut down for want of orders. Under such circumstances one need not refrain from buying coal for immediate consumption or for storage if it is obtainable at a reasonable price. There is no necessity for purchasing more than is needed, especially if lower prices are expected; but if reserves are permitted to run too low, it may be difficult to replenish them quickly when the pinch comes. Just now coal production ought to be encouraged, provided, of course, that the price is right. The electrical industry should avoid, if possible, bringing on any crisis in coal supply. A good load factor is as essential to a coal mine and a railroad as it is to an electric light plant, and a steady movement of coal to market is most desirable. The fact that the public has not been inconvenienced in its supply of electricity during the coal strike speaks well for the public utilities. There is no telling how long the strike will last, however, and as a matter of precaution coal stocks should be replenished gradually and discreetly.

Freight Loadings Increase 7,375 Cars; Coal Movement Gains Slightly

FREIGHT loadings for the week ended April 22 amounted to 714,088 cars, an increase of 7,375 cars compared with the previous week. This compares with 704,632 cars loaded for the same week of 1921, but is a decrease of 3,689 from the 717,777 cars loaded during the corresponding week of 1920.

Increases over the week before were reported in the loading of all commodities, including coal, with the exception of coke and merchandise and miscellaneous freight. Coal loadings totaled 63,445 cars, or 594 more than the preceding week, but a decrease of 74,944 below the same week in 1921. Coke loadings amounted to 7,609 cars, a decrease of 463 cars from the week before, but 2,927 above the corresponding week last year, while the shipments of merchandise freight amounted to 516,020 cars, 2,828 less than the week before.

Freight cars idle because of business conditions totaled 529,884 on April 23, compared with 491,513 on April 15, or an increase of 38,371. Surplus coal cars totaled 229,892, an increase since April 15 of 41,974, while an increase within that period of 827 was reported for coke cars, which totaled 3,669.

Congressman Gootykoontz Defends Operators

A STRONG defense of coal operators from charges for responsibility for the strike and existing conditions in the industry was made by Representative Gootykoontz, of West Virginia, in a speech in the House of Representatives. He particularly directed his remarks to answering propaganda which he said was being circulated in support of the theory of government ownership of coal mines. He denounced the propaganda as slanderous in character and of the most pronounced socialistic type. He denied charges that coal operators are profiteers and disregard the public welfare.

Referring to alleged overdevelopment of the coal industry, Mr. Goodykoontz said this was due to the augmented production of coal caused by the war and referred to the United States having fixed coal prices for the benefit of the Allies during the war. He estimated the value of the coal mines at $4,000,000,000 and doubted whether they could be operated as economically by the government as by private industry.

Discussing the strike, Mr. Goodykoontz, after reviewing the low state of the industry due to lack of demand and low prices, said the miner would have been willing to work for a lower wage if assured regular employment and that if the operators had been able to obtain a reasonable price for coal the strike would not have occurred. He praised the business type of men in the coal industry and said neither the operators nor miners could be criticized for existing conditions.

Carnegie Steel Company Will Build Huge Byproduct Coke Plant

A SECOND byproduct coke-oven plant to be erected by the Carnegie Steel Co. at Clairton, Pa., will cost from $30,000,000 to $35,000,000, according to an announcement by the company May 3. It will double the capacity of the oven already in blast there and will cover an area of sixty-five acres.

The byproduct plant at Clairton now comprises 7,768 ovens of the Koppers type, with a capacity of twelve tons of coal to the charge. These ovens are arranged in twelve batteries of sixty-four each. The new plant will comprise fourteen batteries with sixty-four each, giving the company 1,664 ovens with a total production of 29,952 tons of coal charged a day, or an annual production of about 11,000,000 tons of coke.

The construction of what will be the largest byproduct coke plant in the world is the result of conditions brought about by the bituminous coal strike and the closing of many mines and coke plants in the Connellsville and lower Connellsville regions.

With transportation facilities adjusted to assure adequate supplies of coal, the byproduct ovens can turn out enough coke for all the furnaces owned by the United States Steel Corporation in the Pittsburgh district.

Living Costs Increased During March

LIVING costs registered an increase during March, according to reports to the Department of Labor. Of 30 principal cities reporting so far, 21 show an increase ranging up to 2 per cent, and nine a decrease of 1 per cent for that month.

Cities showing the largest increase are Kansas City, Boston, Cincinnati, Cleveland, Detroit, Minneapolis, Portland, Me., and Washington. New York, Philadelphia, Chicago, Pittsburgh, St. Paul and Salt Lake City showed increases of less than 1 per cent.

Among cities reporting a decrease of 1 per cent were Baltimore, Houston, St Louis and Scranton.

For the year period ended April 15, Bureau of Labor statistics show, food costs declined up to 13 per cent.

THERE WERE ONLY EIGHT BIDS received on May 1 at the Army Supply headquarters, South Brooklyn, for furnishing and delivering to various stations 7,000 tons of run-of-mine bituminous coal, time of delivery up to June 30. Because of the quotations received, ranging from $2.95 to $4, f.o.b. mines, it was thought the bids would be re-advertised.

GROUP MEETING OF
NATURAL RESOURCES PRODUCTION DEPARTMENT
U. S. CHAMBER OF COMMERCE

ANNUAL MEETING MAY 16-18, 1922

Afternoon of May 16

The Coal Industry

"The Story of Coal"—Moving picture prepared by U. S. Bureau of Mines.

"The Industry and Government Regulation"—Address by Howard Sutherland, Senator from West Virginia.

Addresses with discussion on following topics:

"Improved Selling Methods"—W. R. Coyle, vice-president, Weston Dodson & Co., Bethlehem, Pa.; president, American Wholesale Coal Association.

"The Transportation Problems"—E. M. Poston, president, New York Coal Co., Columbus, Ohio.

"The Coal Strike and How to Prevent a Recurrence"—Eugene McAuliffe, president, Union Colliery Co., St. Louis, Missouri.

Fifth Week of the Coal Strike

EDITORIAL REVIEW

FIVE weeks with all the union coal mines and a portion of the non-union mines closed down by strike, the country eating into its sixty-odd million ton storage pile at the rate of 4,000,000 tons per week, and non-union mines producing another 4,000,000 tons per week, prices going up, comparatively little violence in the coal fields, and the country generally apathetic on the subject summarizes the situation in the early part of the sixth week of the strike.

There is as yet no real sign of any development that would forecast the termination of this controversy. Stories that President Harding and the administration are studying the situation and are working on a plan are accompanied by assurance that the plan is something to prevent future strikes and not for the settlement of this one. Representative Bland has finally pushed his fact-finding coal bill into a position before the House, where of course it must take its turn on the calendar, the Nolan committee having reported it favorably.

Meanwhile the non-union mines continue to pour forth coal as fast as consumers demand it. The efforts of the union to close down the non-union fields of Pennsylvania appear to have reached their climax. The steel companies, previously dependent on Connellsville and other coal in this region, are having no difficulty in buying adequate supplies south of the Potomac River. The only problem left now is the transportation of a flood of Southern coal by rail northward through the "gateways to the South."

Virginia, eastern Kentucky and the smokeless and high-volatile fields of southern West Virginia are running practically full time. Western Kentucky, a union field but operating under a contract not yet expired, is meeting the local demand from Chicago and the Midwest.

Lewis Presents Abortive Resolution To Reduce Price of Anthracite

JOINT Recommendation for Reducing the Price of Anthracite was the title applied to a document presented by John Lewis on May 3 to the joint conference of anthracite operators and mine workers in New York. So clearly did the miners know that what they were proposing in that joint recommendation would be vetoed by the operators that the statement prepared by the miners accompanying the recommendation and given to the press in advance of the meeting closed with the following words: "the Joint Reolution which the anthracite operators refused to sign is as follows."

This recommendation, the operators' answer to which is in a following section, contained among the seven whereases, citation of the fact that the price of anthracite to the consumer should be reduced, capital should have a fair return and labor a just and reasonable wage; that freight rates are comparatively higher than on bituminous coal and that needless agencies of distribution exist for the purpose of trafficking in and adding unwarranted profit in the distribution of anthracite. The resolution, which it was proposed the anthracite operators jointly sign with the mine workers, provided:

First, that an investigation at once be made by the Interstate Commerce Commission of freight rates charged for the transportation of anthracite coal, with the end in view of ordering a reduction of such rates if they are found to be unjust and unreasonable.

Second, that the Federal Trade Commission at once investigate all agencies which have been established for the handling and sale of anthracite coal, extending from the mines to the consumers, with the end in view of recommending measures of relief from unwarranted costs and profits.

Third, that a copy of these resolutions be transmitted to the Interstate Commerce Commission and the Federal Trade Commission with the request that they at once institute such investigations and take such action as they may deem necessary to relieve the consumer of anthracite coal from any unjust or unreasonable costs which may be found to exist.

Miners' Resolution Needlessly Complicates Situation, Is Belief of Anthracite Operators

THE attitude of the anthracite operators respecting the resolution offered by the miners' representatives calling for an investigation by the Interstate Commerce Commission of freight rates and by the Federal Trade Commission of the marketing of coal, was expressed in a statement given out on May 3, 1922. It follows:

"As to freight rates which have been established by the Interstate Commerce Commission the subject has been under investigation for many months; representatives of anthracite producers have appeared before the commission and advocated reductions. Everyone is opposed to 'unjust and unreasonable rates' and if any such rates are in effect the commission may be depended upon to change them.

"The Federal Trade Commission is empowered by law to investigate any situation within its jurisdiction and apply corrective measures. Anthracite producers, the general impression to the contrary notwithstanding, have not only never put any obstacles in the way of the Trade Commission obtaining any information it sought in regard to the hard-coal industry but have placed their books and other records at the disposal of the authorized agents of the commission, which has already made exhaustive reports on the anthracite situation.

"For these reasons the operators have not thought it desirable to join with the miners' representatives in resolutions which tend to confuse rather than clarify the situation. The matters dealt with in the proposed resolutions are not within the jurisdiction of the joint committee of miners and operators constituted to negotiate a new contract covering wages and working conditions. To concern itself with anything else can only delay and complicate solution of the issues with which it is dealing, namely, the formulation of a fair wage scale and reasonable working conditions. The operators decline to be diverted from this task by proposals which, whether desirable or not, have no bearing upon the task of providing a basis for the resumption of anthracite production."

Warriner Defends Anthracite Operators' Delay in Naming Wage-Reduction Demands

AT THE conclusion of the conference of the joint wage subcommittee of anthracite operators and miners held in New York City May 5, at which time an adjournment was taken until Monday, May 8, Samuel D. Warriner gave out a statement defending the delay on the part of the operators in making known their demands as regards wage reduction. In it Mr. Warriner said:

"It would have been a very simple matter at the outset for us to tell the miners' representatives what we thought the wage reduction should be. But this necessarily would have been a maximum figure to cover all contingencies, known and unknown. We were and are unwilling to do this. We do not intend to put out a 'trading proposition.'

"Furthermore, we have thought it our duty to our employees to listen to and carefully consider their side of the case, and to give them an equal chance to get our viewpoint. We believe that real progress has been made toward an understanding, and that we are approaching a point where there can be a contact of minds on the fundamental problems involved. There is already a much better comprehension of the fact that for everyone in the anthracite region as well as for the mine worker it is better to have regular employment at good wages than scant and irregular employment at overinflated wages.

"Our problem is to make the wage reduction not as much but as little as possible, and still keep the mines in operation. That is the problem with which we are grappling and

of which we expect to find a solution fair to all. But this solution cannot be brought about hurriedly nor until those concerned have come to an understanding of facts and conditions which neither miners nor operators can ignore."

Warriner Disputes Lewis Statements At Hearing on Bland Bills

THE anthracite operators did not appear before the House Committee on Labor when the various proposals of Representative Bland were being considered. There was, however, considerable testimony recorded on the anthracite situation from the standpoint of the mine workers, and in a letter dated April 29, 1922, S. D. Warriner, chairman of the Policy Committee of the Anthracite Operators, addressed a letter to Representative Nolan, chairman of the House Committee on Labor, challenging some of the statements of John L. Lewis, president of the United Mine Workers. Mr. Warriner's letter follows:

In his testimony before your committee, John L. Lewis, president of the United Mine Workers of America, made certain statements regarding present conditions in the anthracite region which I cannot permit to remain on the record unchallenged.

On page 194 of the record, "Hearings before the Committee on Labor," on H. R. 11022, occurs the following statement by Mr. Lewis:

"The mine workers wish to remain at work in the mines, but existing circumstances would not permit them to do so. The trouble, so far, in the anthracite region is that the operators are not willing to allow the mine workers to continue at work during the progress of the negotiations, and as they have accumulated considerable stocks of coal, and as warm weather is about here, there will be no great hardship from the suspension except to the poor devil of a mine worker who finds himself out of a job, and to the railroad worker who may be laid off after the surplus stocks of coal are carried to the market."

This statement is distinctly at variance with the facts. In accepting the invitation of Mr. Lewis to meet the representatives of their employees for the purpose of negotiating a new wage agreement, the General Policies Committee of the Anthracite Operators expressed regret that the date for the meeting fixed by Mr. Lewis, namely March 15th, approached so closely that of the termination of the existing agreement, as it would not permit the completion of the negotiations.

They agreed, however, to meet with the miners' representatives and have been in almost continuous conference with them through the wage negotiating committee since March 15. In view of the fact that negotiations were in progress and that there were possibilities of an agreement being reached, which even if reached after April 1, could have been made retroactive to that date, the calling of the suspension by Mr. Lewis came as a distinct surprise to the anthracite operators. Their representatives on the negotiating committee protested vigorously on what they considered a flagrant breach of faith on the part of Mr. Lewis and his associates, but without avail. The anthracite operators were absolutely without any responsibility for the calling of the suspension.

The statement that the operators had accumulated considerable stocks of coal falls to the ground when it is known that approximately 90 per cent of the coal in storage consisted of pea and buckwheat sizes which had backed up in the storage yard simply because of lack of demand for these sizes in the late months of 1921.

Mr. Lewis in the paragraph following the one quoted says further: "In the anthracite field the operators are carrying out their agreements to enter into conference, but say there must be a suspension until it can be determined when the wage rates for the ensuing term are to be fixed." The anthracite operators never made nor contemplated making any such utterance.

On page 199 of the record Mr. Lewis is quoted as saying:

"An investigation made recently throughout the anthracite regions outside of Scranton reveals the fact that the decline in prices in these regions has been distinctly less than it has been in Scranton, and therefore considerably less than throughout the United States as a whole. This investigation has been only partially completed, but so far the strong probability is that prices in the anthracite regions have even risen since June, 1920, at which time they reached the peak, both in Scranton and throughout the United States generally."

What the report of the Bureau of Labor Statistics really said was: "During the month from Feb. 15 to March 15 there were decreases [in the retail cost of food] in Detroit, Philadelphia, Rochester, Salt Lake City and Scranton of 3 per cent; in Norfolk and San Francisco of 2 per cent, and in Chicago, Cincinnati, Columbus, Little Rock, Louisville, Mobile, Minneapolis, New Orleans and St. Paul of 1 per cent," Scranton being included in the group of cities that reported the largest decrease.

Watchful Waiting at Washington

THE beginning of the second month of the strike found each contender well dug in, prepared to settle down for an indefinite period of trench warfare. Despite the fact that a score of coal specialists in Washington are constantly on the watch for any sign which may have significance, they could point to no important change in the situation at the end of the first week in May. The worst feature is that no one sees a prospect of anything more than a makeshift peace. Secretary Hoover admits that something more fundamental must be done than try to patch up the present quarrel. That is as far as he is willing to go at this time by way of explanation.

Looking back over the first month of the strike, it is apparent that the mine workers are no closer to their objectives than they were on April 1. At the same time they have been able to accomplish more than anyone thought, before the strike. One official says the odds were ten to one against the mine workers when the strike began, but that the strikers have decreased the odds against them until, in his opinion, they now stand six to one. Operators, however, see favorable signs. The tension seems to be getting on the miners' nerves, as indicated by some rioting, they point out. The operators claim gains in central Pennsylvania, but as yet this has not been reflected in increases of tonnage.

One of the significant features of the strike is the absence of legal interference. This is particularly the case in Pennsylvania, where no injunctions have been granted. Observers in Washington are wondering if this indicates a changing attitude on the part of the judiciary with respect to the use of the injunction weapon.

Slowly over the course of years a valuable asset is being built up by the government in the shape of fundamental knowledge as to the coal industry. During the past month material additions have been made to this knowledge. It is emphasizing more and more the unbridgeable character of the chasm which separates the coal-mining industry north of the Ohio River from that which lies south of it. The union territory and the non-union fields possess all the elements of opposition that are possessed by the positive and negative poles of a battery. Anything fundamental seems to require agreements on a national scale. Patently there must be radical changes before anything like general accord can be effected between such radically differing entities.

P. W.

Scores Operators for Withholding Costs; Labor Committee Got Useful Data

IN a speech in the House of Representatives on May 2, reviewing recent consideration of the coal situation by the Labor Committee, of which he is a member, Representative Bland, of Indiana, sharply attacked the coal operators for refusing to divulge production costs, and predicted that eventually Congress would take some action looking to ascertainment of facts in the coal industry. He argued that his proposed bill creating a fact-finding agency is constitutional. Mr. Bland stated that while the committee has been unable to get the operators and miners together on a new wage agreement, its labors have been "helpful in clearing up many points of misunderstanding and in obtaining a great amount of information which is to prove of great value in the solution of the problem which we hope will come in the near future."

Mr. Bland said that "President Harding on more than one occasion expressed his disapproval at the obstinate attitude on the part of some in refusing to carry out the agreement" and that Secretary of Labor Davis has gone the limit in trying to get the contending forces together. He referred to the "open breach of faith and open defiance to public and official opinion on the part of the operators." He admitted that John L. Lewis "made demands which he himself probably realized his organization could not hope to obtain in a conference with the operators" and that his organization "would be required to recede from a part of its demands."

Mr. Bland said that it was remarkable that no government fact-finding agency was able to give the committee in its hearings any information on more than 2,500 out of the 11,000 coal mines of the country and that for the most part the information was restricted to two or three hundred mines.

"Government agencies, in their attempts to gain information, with a few minor exceptions, were required to take and did take such information only as the operators through their various associations wished to disclose," he declared. "On more than one occasion operators brazenly refused to give the committee the cost of production or the selling price

of coal at their mines. Some of the mines where the high and outrageous prices were demanded and obtained were owned by those who refused to give information on cost production. The National Coal Association, through its vice-president, Mr. Morrow, came forward with its padded report. There is no agency of the government that has the information or can obtain it as to what it cost during the last year for a well-equipped, efficient mine to produce a ton of coal. The government not only does not have it but the right to obtain it is denied by the coal operator. He says it is an unwarranted interference with his private business."

Mr. Bland told the House why the operator "does not want to give the price it costs him to produce a ton of coal." "At times when the pinch comes and the public must have coal he demands an exorbitant price for it and he does not want the country to know what it costs him to produce it because he realizes that in many instances the public would feel outraged and that some retaliatory measures would be resorted to," said Mr. Bland.

Mr. Bland said it is hoped by those who are thinking on the coal problem that a remedy may be found for the evils in the industry, and that it may be stabilized so that there will be steady production at all seasons, competition will reign and cheap fuel be had, with a good fair profit to the operator and a good wage and steady work for the employee.

Mr. Bland said the coal industry was overdeveloped, there being a third too many mines and miners. Because of the seasonal demand for coal the operators sold to whoever paid the highest price, which was true of farmers and other producers. He advocated greater production of coal in summer, reduced freights in summer, storage of coal by railroads by Interstate Commerce Commission order, and storage by the consumer.

Mr. Bland opposed a cut in miners' wakes as a means of reducing the price of coal and referred to steel and railroad interests owning coal mines which were fighting the mine union.

Analyzing his proposed fact-finding agency Mr. Bland said that in addition to obtaining data as to cost of producing coal it would open up the books of the mine unions and require them to show what they spend their money for, and also would delve into the coffers of those who are prosecuting claims against the government for coal sold to the navy at $16 per ton. He predicted that if passed, his bill forbidding coal shipments by companies refusing to furnish the government cost of production information would be sustained by the courts.

Fact-Finding Bill Is Favorably Reported; Amended to Compel Presence of Witnesses

A FAVORABLE report has been ordered by the House Committe on Labor on the bill of Representative Bland to establish a coal investigation agency to operate for two years in an attempt to frame a groundwork on which Congress may legislate to stabilize the coal industry. Effort will be made to have the bill passed by the House during this session. The bill as reported was modified in a number of respects by the committee. It provides in more detail for the selection of the representatives making up the agency of ten members, who are to include the directors of the Geological Survey, Bureau of Mines and Bureau of the Census, the Commissioner of Labor Statistics and two representatives each of the public, the miners and the operators.

The objects of the bill in addition to those described in *Coal Age* of April 27, page 704, are to provide information for Congress as a basis for legislation along the following lines:

To settle industrial disputes in and to prevent the overdevelopment of the coal industry.

To stabilize such industry and levy taxes in respect thereto.

To regulate commerce in coal among the several states and with foreign nations.

To provide a coal supply for the maintenance of the navy and the merchant marine.

To protect the coal supply for the District of Columbia and forts, magazines, arsenals, dockyards and other public buildings of the United States outside of the District of Columbia.

For these purposes the agency is authorized and directed by the bill to require and obtain from any person such data, information and reports as it deems desirable for such purpose, including among other matters, data, information and reports as to the following:

Supply, production, distribution, storage and consumption of coal and its grading and economic utilization.

As to the relations between operators of coal mines and washeries and their employees with particular reference to wages, hours of labor and working conditions.

As to the ownership and value of coal lands and of property of operators or owners which is of use in the operation of coal mines or washeries.

An amendment to the original Bland bill incorporated by the committee would permit the agency to require by subpœna the attendance of any witness and the production of books or other evidence "from any place in the United States."

The bill also provides that the agency may invoke the aid of any U. S. District Court in obtaining compliance with its subpœnas. The court may order a witness to comply with the requirements of a subpœna and to give evidence touching the matter in question. A new paragraph provides that if the court makes such order it may also fix in the order the time for compliance therewith and enjoin the witness from shipping or receiving from shipment in commerce among the states or with foreign nations any coal after the time so fixed and before his obedience to the order. The bill carries a penalty of $5,000 or imprisonment for a year or both for failure to comply with orders of the agency. It is also stipulated that if any provision of the act or the application thereof to any person or circumstance is held invalid, the invalidity of the remainder of the act and of the application of such provision to other persons and circumstances shall not be affected thereby. The bill appropriates $50,000 for expenses of the agency for the year ending June 30, 1923.

Keeney Says Union Miners of West Virginia Will Not Make Separate Agreement

THAT the union miners of West Virginia will make no separate peace or agreement with the operators of West Virginia was the announcement made on April 26 at Charles Town, where Keeney and other officials of the United Mine Workers are undergoing trial charged with treason and other crimes. Keeney in making his announcement said that no matter what action might be taken in other states the members of District 17 and District 29 will stand by the International organization. This was the assurance given John L. Lewis, Keeney said, at a conference between Lewis and the officials of District 17 and District 29.

Lewis discussed with John H. Sprouse, president, and John Gatherum and other officials of District 29 the temporary injunction against organization activities in the Winding Gulf and other non-union fields, but no statement was made as to the nature of the discussion nor what steps the officials proposed to take. Sprouse and Gatherum made the trip from Beckley for the express purpose of consulting Lewis.

Illinois Prepares for Settlement; Peace Prevails in Most Mining Fields

IF THE miners of Illinois were to ask tomorrow morning for a wage conference with Illinois operators, the operators would be ready in five minutes to lay down their idea of a wage agreement. The finishing touches to a proposed agreement covering a hundred and one conditions that will have to be determined upon before work resumes, were applied at an operators' meeting in Chicago, May 4. Then the document and all that appertains thereto was

sealed up to await the time when it can be spread on a conference table.

While no definite move toward such a conference has been made, it may be expected at any time in the near future, for there is no denying that the Illinois miners are getting restive at the delay and the deadlock. But even after a conference shall have been asked there remains a long, hard road to travel before any sort of settlement can be made. Many coal men believe that even should Illinois be the first to start conferring, it may be the last to get a settlement. The recent prophecy of a Kentucky coal-mining company's president that western Pennsylvania will have a new wage scale in effect within 45 days and that settlements by states will move westward from there, wins nods of acquiescence hereabouts from men who once thought Illinois would settle first.

There is peace throughout the Illinois and Indiana mining fields. No serious disturbances have occurred, and in many mines a few members of the miners' union are doing repair and maintenance work at wages far under the old scale and without interference from union headquarters.

Utah's Tense Mine Situation Is Like Keg of Powder with a Short Trail Laid

UTAH, which hardly knew it had a coal miners' strike until a week ago, watches the bulletins fearfully now. The situation is tense and as ready for an explosion as a keg of gunpowder with a short powder trail ready for a spark. Applications from various mining fields have come to Governor Mabey for troops to prevent another outbreak such as that of last week when 500 or more shots were fired around promiscuously in Carbon County. About 50 special deputy sheriffs were on duty at the end of last week in Winterquarters and Scofield and troops were in readiness for a rush to a riot.

M. P. Bales, president of the Utah Federation of Labor, has written the Governor warning him that there will be a general strike of organized labor throughout the entire state if any troops are sent out and martial law declared. The Governor replied that he would pay no attention to such threats. If the occasion demands, troops will be used. Carpenters' organizations also have protested to the Governor that use of the militia in this case is desired by big industry and that the scheme should be thwarted.

When the 50 special deputies were sent out a few days ago, Sheriff Kelter warned Commissioner Gibson of Carbon County that no arrests or searches for arms should be made for fear of starting trouble unnecessarily.

Mine owners in that county have sent a petition to the County Commissioners saying in part: "These two localities [Scofield and Winterquarters] are filled with a lawless element, who in defiance of the law are armed and who are now interfering by force and intimidation with the rights of citizens resident within said districts."

Commissioner Knerr of the State Industrial Commission, a former labor leader, is in Carbon County as the personal representative of Governor Mabey. Mr. Knerr has addressed several meetings in which he has urged the men not to resort to violence.

Small Disturbances Occur in Colorado Mining Regions

PRACTICALLY no changes have been reported in Colorado strike conditions in Berwind canyon, Delagua, Aguilar and Trinidad districts. All Colorado Fuel & Iron Co. mines in the Walsenburg district are running under normal conditions, according to company officials. Small forces are reported working in the Canon City district at the following camps: Rockvale, Fremont, Nonac, Emerald, Chandler, Radiant and Wolf Park.

Colorado state rangers are investigating the attempted wrecking of coal cars drawn over the cut back of the Caddell mine, midway between Walsenburg and Turner, Col. Fire recently destroyed a trestle railroad bridge southeast of Turner camp. Adjutant General P. J. Hamrock, head of the ranger force, says that fire was incendiary.

Mines Bureau Seeks Data on Coal Storage

A STUDY of coal storage has been undertaken by the Bureau of Mines, in conjunction with the Department of Commerce, in which many of our readers will be interested and from the results of which the larger industrial users of coal and the railroads should gain much practical and useful information.

F. R. Wadleigh, in charge of this study for both bureaus, desires to obtain as much data as possible on the subject and has sent the following letter to a number of the larger users of coal.

Coal Age urges any of its readers who are interested in the subject to write Mr. Wadleigh, giving him what data they have. A letter in care of the Bureau of Mines, Washington, D. C., will reach him.

The obvious importance of a clear understanding today of all elements involved in the storage of coal, for industrial and other purposes, has led the Bureau of Mines, in conjunction with the Department of Commerce, to undertake an investigation of the question, in which your co-operation and advice is earnestly requested.

While there has been much agitation of the possibilities of coal storage in the way of giving more regular mining and movement of coal, but little exact information is available, especially regarding costs of handling and transportation in and out of storage, as well as of the investment, fixed charges, etc., involved.

The Bureau requests therefore that you will, at your convenience, give it the benefit of your views and conclusions on the various items given below, calling attention particularly to the value of exact data and actual working costs. The various items to be covered are as follows:

Method of storage.
- Under water or not.
- Closed sheds or in the open.
- Kind of floor or ground.

Location of storage with reference to point where coal is to be used.
Quantity stored—maximum; average.
Spontaneous combustion—methods of preventing.
Handling fires, method of.
Devices used for observing temperature and inspection.
Danger point as regards temperature.
Deterioration in sizes and also in heating value in stored coal.
In your practice what tonnage can be stored per acre of available space?
Depth of pile, maximum allowed.
Kind of coal stored.
- District from or trade name.
- Size stored.
- Is coal screened before storing?
- How long coal must be stored.

Best time of year to store.
Cost of storage plant and cost of maintenance.
Cost of handling in and out of storage.
- Transportation to pile.
- Transportation from pile to point of use.

Effect of climate on stored coal, if any.
Costs of unloading and releasing.
Method of handling in and out of storage.
Cost of investment and fixed charges.

Compliance with this request will be greatly appreciated and any data furnished will, of course, be treated as confidential, if so desired.

March Railroad Earnings $52,736,492 More Than During That Month Last Year

REPORTS from 197 Class 1 railroads, representing a mileage of 233,000, to the Interstate Commerce Commission show that the net operating income in March of those roads totaled $83,374,299, compared with $30,637,807 during the same month one year ago.

The operating revenues in March of the 197 roads totaled $472,689,165, which was an increase of 3½ per cent over those for the same roads in March, 1921, while their operating expenses amounted to $359,328,983, or a decrease of 9.7 per cent compared with that month last year.

Eighty-five roads in the Eastern district had operating revenues totaling $242,243,780, an increase of 10.2 per cent over March one year ago, while their operating expenses were $180,982,699, or 7.6 per cent less than those for the same month last year. The net operating income for those 85 roads amounted to $47,801,191, compared with $11,755,351 in March, 1921.

Reports for 31 railroads in the Southern district showed that their operating revenues amounted to $62,009,728 in March, or 2½ per cent greater than during that month one year ago, while their operating expenses totaled $47,137,912 which was 11.4 per cent below that of one year ago. The net operating income for the 31 roads amounted to $11,093,394, compared with $4,016,643 in March, 1921.

Reports from 81 roads in the Western district on file show their operating revenues were $168,435,657, a reduction of

4.4 per cent compared with March, one year ago. The operating expenses of those 81 roads totaled $131,208,372, or 11.8 per cent below the same month in 1921. The net operating income of those roads amounted to $24,479,714, compared with $14,865,813 in March one year ago.

U. S. Foreign Trade Nearer Normal Than That of Principal Competitors

IN ORDER to correct much popular misapprehension and conflicting opinion regarding the present condition of our foreign trade Herbert Hoover, Secretary of Commerce, calls attention to a few fundamental factors in the situation.

"It should be pointed out, in the first place," says Mr. Hoover, "that in order to form a correct opinion of the volume of our foreign trade we must take a pre-war year as a basis of comparison. The tremendous increase in our foreign trade during the war could not have taken place under normal conditions, and therefore should not be taken as a starting point in an estimate of our present situation. As a matter of fact, when we consider the diminished purchasing capacity of the civilized world, caused by the war, we are not sure whether we are even justified in adding to our pre-war level the average pre-war normal increase to cover the period since the outbreak of the war. While this reservation may seem superfluous, there is reason to believe that it has not been sufficiently emphasized in some of the popular discussions of our foreign trade.

"On the basis of a pre-war comparison we find, as will be seen from the following table, compiled from official figures, that the foreign trade of the United States is nearer normal than the trade of the United Kingdom, France or Germany, which are our principal competitors. While the figures in the table are only approximately comparable, owing to the fluctuations in price level, it is believed that they are sufficiently correct to indicate the relative advantage of the United States in foreign trade.

"If the trade of various countries were analyzed by commodities instead of values they would still show somewhat the same proportion. In other words, the trade of the United States, even in times of great depression, is higher than our pre-war level. During the last few months there has been a distinct revival in trade from the low point, and I am confident that we have little reason to accept the pessimistic view of our foreign trade future taken by many students of the question. Our trade has shifted somewhat as to commodities owing to the changed economic currents due to the war, but when all is said and done the remarkable fact stands out that we have held on."

FOREIGN TRADE OF THE UNITED STATES, GREAT BRITAIN, FRANCE AND GERMANY BEFORE AND AFTER THE WAR[1]

	Imports			Exports		
Countries	1913	1921	Ratio of 1921 to 1913	1913	1921	Ratio of 1921 to 1913
United States	$1,893,900	$2,509,000	133	$2,364,500	$4,485,100	191
United Kingdom	3,741,048	4,182,713	112	3,089,353	3,118,686	101
France	1,625,317	1,755,633	108	1,327,882	1,606,870	121
Germany[2]	2,563,185	1,062,684	41	2,403,142	858,292	36

TOTAL TRADE

	1913	1921	Ratio of 1921 to 1913
United States	$4,258,400	$6,994,100	164
United Kingdom	6,830,401	7,301,399	107
France	2,953,199	3,362,503	114
Germany[2]	4,966,327	1,920,976	39

[1] All figures, except ratios, are given in thousands. [2] Figures estimated on an eight-month basis.

Engineers Ratify Alliance with Miners

AT a meeting with Warren S. Stone, president, held in Cleveland, Saturday, May 6, the Advisory Board of the Brotherhood of Locomotive Engineers ratified the joint resolution adopted in Chicago on Feb. 22 at a conference of representatives of union coal miners and railway unions for a closer alliance between miners and the sixteen leading railroad labor organizations.

The resolution declares for closer co-operation of forces to more effectively protect the interests of those engaged in those industries and to obtain adequate compensation for service rendered. The plan is to become operative when ratified by the constitutional authorities of each of the associated organizations.

The engineers are the first of the "Big Four" brotherhoods to ratify the agreement. The Order of Railway Conductors will take action during their triennial convention now in session in Cleveland and the Brotherhood of Railroad Trainmen, meeting in triennial convention now at Toronto, and the Brotherhood of Firemen and Enginemen, also now holding their triennial convention in Houston, Texas, will consider the agreement.

Several of the railroad unions outside of the brotherhoods and the United Mine Workers of America have already ratified the agreement.

Tilts Are Numerous, Progress Is Slow, In Blizzard Treason Trial

DURING the last week progress was slow in the trial in Circuit Court at Charles Town, W. Va., of William Blizzard for treason in connection with the armed march of miners into Logan County last summer. Heated passages between witnesses for the state and counsel for the defense were frequent, the miners' attorneys putting witnesses through a searching cross-examination.

Use of union funds to equip and supply the marchers, pay for automobile trips after ammunition and for other purposes furthering the aims of the expedition and the individual experiences of some of the marchers made up much of the testimony on May 2. Contribution of $1,695 from the funds of one local union to various men, and supposed to have been for the purpose of the march, was shown by putting the cancelled checks in evidence. Oat Dickens, treasurer of the local at Montcoal last year, produced the checks and with them the orders on which he based his authority to write them.

That the marching miners last August and September were far from blind to the existence of martial law in Mingo County was indicated May 3 in testimony by Jim King, who said he attended a mine local meeting in August, when Savoy Holt exclaimed: "To hell with martial law in Mingo County! We had martial law on Paint Creek and we licked it there, and we'll lick it over here. We'll wipe out martial law in Mingo County!"

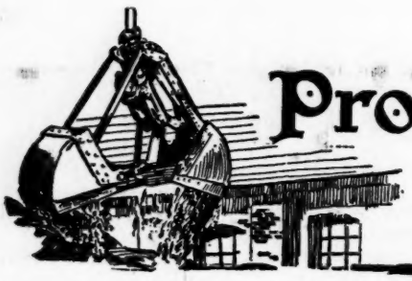
To this was added the testimony of J. N. Stone, who said he heard marchers declare they were going to Charleston to "blow up the newspaper office and hang the Governor."

The prosecution put state and federal officials on the witness stand May 4 to identify Blizzard as the leader of the army. Major Charles T. Smart, of Louisville, who commanded troops up Coal River, said he found through Blizzard the only quick means of getting into successful touch with the armed miners. When they refused to come to terms on surrendering their arms Major Smart said he asked Blizzard to use his influence. Within ten minutes the men began coming forward with their arms, many of them crossing a stream to get arms which evidently had been hidden in the grass and brush.

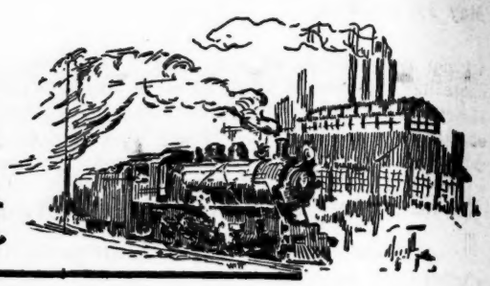
Sheriff V. N. Griffith, of Boone County, identified Blizzard as the man who had been in conference on Friday, Sept. 1, with Captain Wilson and others in Madison and who had told the federal commander that, having been on all the firing fronts that day, he knew the men were ready to surrender as soon as federal officials reached the scene.

Harold M. Richards, mine superintendent, of Blair, quoted Blizzard as saying he had not "slept or eaten for thirty-six hours" while he was "trying to save the guns for some of the men." Richards also told of having heard Blizzard encourage the miners at the temporary headquarters of the men at Blair to "hold out until the federal forces arrive, and then surrender. At this time and for a few days thereafter the fighting continued," Richards declared.

J. S. Moore testified May 6 that Jim Morris, at a meeting of the local union of which he was president, told every man who didn't take part in the fight "his toes would be turned up to the sun." Moore corroborated Richards' testimony that men had been placed to shoot any state police that might arrive by train.



Production and the Market



Weekly Review

SPOT prices on bituminous coal advanced last week while production for the country as a whole remained practically stationary compared with the last week in April. The first week of May recorded gains in production over April in every large field save in the stronghold of the non-union operations in central and southwestern Pennsylvania and in northern West Virginia. Even here each day of May has recorded slight gains.

Coal Age Index of spot prices advanced 9 points from 221 on May 1 to 230 on May 8. The most notable gains were in the North Atlantic, New England, Pittsburgh and Southern markets, the Midwest region alone remaining stationary. Perhaps even the Chicago market would have advanced but for an unusual influx around the first of May of coal from western Kentucky. Speculators in Chicago are reported to have bought heavily in that coal, to have overstocked the market and to have lost.

Demand Gains, in Places Exceeding Supply

Demand is steadily gaining and in spots is ahead of the available supply, which accounts for the strength of the market. Eastern centers are now feeling the pinch most strongly. The output from central Pennsylvania is so short of filling the demand of those consumers who have no other source of supply that heavy premiums are being exacted in this trade. Special grades of coal are no longer demanded and in the local scramble to obtain tonnage for particular spots in eastern New York and New Jersey prices have gone up to $4 per net ton.

Hampton Roads coals have more than filled the demand at those points that can be reached by water-borne coals. The demand from the West for these coals, however, has reduced the offerings in New York Harbor, but has not as yet affected the price.

Reserves are still being utilized wherever possible, but the number of active buyers is increasing daily. There is a more healthy tone to general business and fear is being expressed that the budding industrial boomlet may be nipped by prohibitive coal prices caused by the continuance of the strike. A reversal of sentiment is growing among operators, especially in the Eastern Inland district, from the extreme wage cuts originally proposed. Higher prices are surely a deterrent to talk of wage reductions and it is quite possible that prompt acceptance would follow any overture on the part of the miners for separate district wage conferences.

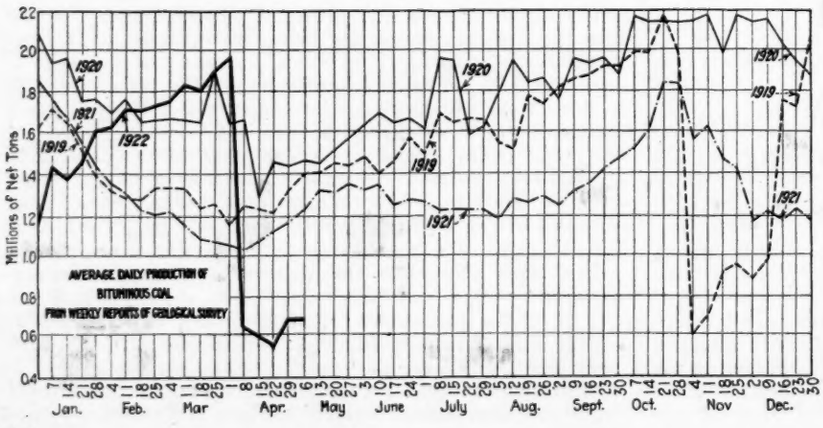
A growing uneasiness is apparent among consumers as stockpiles dwindle. Shortage conditions are far away, but the buyer has in times like these been prone to mill around as soon as his reserve bin loses its well-filled appearance. Last minute reports from New England show that for the first time in months water-borne coal is in actual demand. A week ago distress coal was common but this has all been cleaned up and buyers are requesting more. This despite the fact that the textile strike has removed much buying power that would otherwise be in evidence. It is being recalled in the trade that when New England goes on a coal-buying rampage, the lid is off.

Anthracite production, of course, is at a standstill but there is no activity in any market. Retail stocks of domestic coal are slowly dwindling but distribution is only for current needs. Steam coals also are quiet, although but little is offering aside from Buckwheat No. 1.

BITUMINOUS

"Production of coal has struck a temporary level a little above the 4,000,000-ton mark," says the Geological Survey. "The output for the week of April 29 was 4,150,000 tons, and early reports indicate that last week (May 1-6) will show a like amount. Production of anthracite remains practically zero.

"The total output of all coal—anthracite and bituminous



Estimates of Production
(Net Tons)

	1922	1921
BITUMINOUS		
Apr. 15	3,656,000	6,528,000
Apr. 22 (*b*)	3,575,000	6,815,000
Apr. 29 (*a*)	4,150,000	6,984,000
Daily average	692,000	1,164,000
Calendar year	144,504,000	127,151,000
Daily av. calendar yr.	1,438,000	1,266,000
ANTHRACITE		
Apr. 15	6,000	1,885,000
Apr. 22	6,000	1,903,000
Apr. 29 (*a*)	6,000	1,945,000
COKE		
Apr. 22 (*b*)	94,000	73,000
Apr. 29 (*a*)	87,000	76,000
Calendar year	2,304,000	2,850,000

(*a*) Subject to revision. (*b*) Revised from last report.

—in the fourth week of the strike (April 24-29) was 4,156,000 tons. In the fourth week of the 1919 strike 5,334,000 tons of bituminous coal and 1,759,000 tons of anthracite were produced, a total of 7,093,000 tons. Current weekly output of all coal is therefore running some 3,000,000 tons short of the 1919 experience.

"Much the same rate of production obtained last week (May 1-6), the fifth of the strike. A decrease on Monday, associated with the May Day holiday, was overcome the following day, and on Wednesday loadings reached 12,810 cars, the highest figure recorded since the strike began. The total loadings for the week bid fair to be practically the same as in the fourth week. The trend of production may be seen from the following table of cars loaded daily:

Day	First Week	Second Week	Third Week	Fourth Week	Fifth Week
Monday	11,445	10,772	7,898	12,131	11,919
Tuesday	11,019	10,658	10,041	12,377	12,120
Wednesday	11,437	10,961	11,088	12,622	12,810
Thursday	11,090	11,482	11,193	11,981	12,460
Friday	11,296	10,714	11,596	12,362	.....
Saturday	8,888	8,501	10,194	11,295	.....

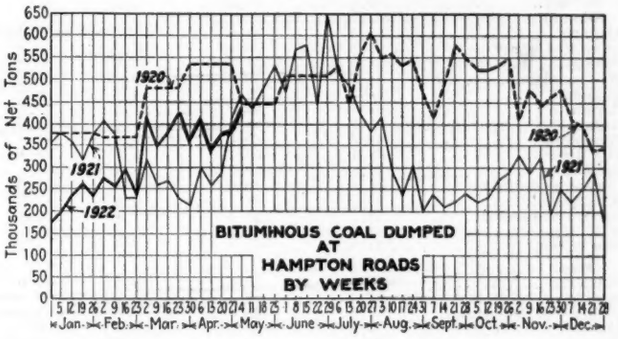
"The situation is, therefore, essentially unchanged. No significant break in the ranks of striking miners has occurred, although a small number of men have gone back to work in Texas. The number of non-union men on strike has not changed materially. The accumulation of unbilled cars of coal is slowly decreasing, but is still above normal. Demand is stiffening, but the market is still not active enough to call out full production from mines remaining at work.

"As before, consumption is being met largely from storage. At the present rate of output the draft upon consumers' stockpiles cannot be much less than 4,000,000 tons a week.

"Substantial progress was made in reducing the number of unbilled loads of coal during the fourth week of the strike. The average number of unconsigned loads for the week ended April 22 was 22,663 cars of bituminous coal and 1,254 cars of anthracite. During the last week of April the number was 17,708 cars of bituminous and 1,042 cars of anthracite."

All-rail movement of bitumious coal to New England during the week ended April 29 was the lowest since the strike began. Only 769 cars were forwarded, a decrease of about 20 per cent from the week before and but one-fifth of that in the week preceding the strike. Central Pennsylvania grades are quotably higher and this tonnage is absorbed in more active markets than New England presents.

Dumpings at the Roads were 433,960 net tons during the week ended May 4, as compared with 384,677 tons during



the preceding week. Coal awaiting loading at the piers is now lower than for some time. South America is taking a heavier tonnage, as is the bunker trade. New England shipments are again increasing, as distress cargoes in that section have been cleaned up.

Lake business has been hit by growing industrial demand. Non-union coal is still being dumped at the lower ports, but at the rate of 700 cars daily, much below that prevailing in May last year. Much of this coal is going to Buffalo furnaces instead of the Northeast. Head-o-the-Lakes docks have received and unloaded most of the coal which has cleared from the lower ports and the up-bound movement has declined. Market conditions, however, are sluggish in the Northwest—buyers have resumed their attitude of indifference, reassured by the 2,700,000 tons of soft coal on the docks, awaiting distribution whenever they may choose to place their orders.

COKE

Production of beehive coke declined further during the last week of April, although the decrease was less marked than earlier in the month. The output was 87,000 net tons, a decrease of 7 per cent from the preceding week. The market is inactive, both supply and demand being light, as the average furnace cannot pay asking prices.

Connellsville coal is very scarce and in strong demand.

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F. O. B. Mines

Low-Volatile, Eastern	Market Quoted	Apr. 10, 1922	Apr. 24, 1922	May 1, 1922	May 8, 1922†
Smoke'ess lump	Columbus	$2.85	$2.85	$3.05	*$2.75*@*$3.00*
Smoke'ess mine run	Columbus	2.15	2.00	2.40	2.25@ 2.50
Smokeless screenings	Columbus	1.35	1.55	1.75	**2.10@ 2.25**
Smoke'ess lump	Chicago	2.40	2.30	2.75	**2.75@ 3.00**
Smoke'ess mine run	Chicago	1.75	1.80	1.95	**2.00@ 2.50**
Smoke'ess lump	Cincinnati	2.50	2.65	2.90	2.75@ 3.00
Smoke'ess mine run	Cincinnati	1.90	2.00	2.15	**2.50@ 2.65**
Smokeless screenings	Cincinnati	1.65	1.90	2.15	**2.25@ 2.50**
*Smokeless mine run	Boston	4.60	4.80	5.05	**5.40@ 5.85**
Clearfield mine run	Boston	2.05	2.70	2.60	**3.00@ 3.25**
Cambria mine run	Boston	2.30	3.25	3.00	**3.25@ 3.75**
Somerset mine run	Boston	2.10	2.70	2.80	**3.15@ 3.60**
Pool 1 (Navy Standard)	New York	2.80	3.65	3.75	3.50@ 4.00
Pool 1 (Navy Standard)	Philadelphia	2.80	3.45	3.70	**3.60@ 3.90**
Pool 1 (Navy Standard)	Baltimore	2.70	3.75	3.75	**3.75@ 4.00**
Pool 9 (Super. Low Vol.)	New York	2.40	3.25	3.25	**3.25@ 3.75**
Pool 9 (Super. Low Vol.)	Philadelphia	2.30	3.05	3.30	**3.25@ 3.50**
Pool 9 (Super. Low Vol.)	Baltimore	2.50	3.25	3.40	3.25@ 3.50
Pool 10 (H. Gr. Low Vol.)	New York	1.95	3.00	3.00	**3.00@ 3.50**
Pool 10 (H. Gr. Low Vol.)	Philadelphia	2.00	2.90	3.15	**3.10@ 3.30**
Pool 10 (H. Gr. Low Vol.)	Baltimore	2.25	2.95	3.25	3.25
Pool 11 (Low Vol.)	New York	1.75	2.75	2.75	**2.75@ 3.25**
Pool 11 (Low Vol.)	Philadelphia	1.75	2.70	2.80	**2.70@ 3.00**
Pool 11 (Low Vol)	Baltimore	2.15	2.85	3.10	**3.10@ 3.25**
High-Volatile, Eastern					
Pool 54-64 (Gas and St.)	New York	1.70	2.50	2.70	2.50@ 2.85
Pool 54-64 (Gas and St.)	Philadelphia	1.55	....	2.50	**2.30@ 2.95**
Pool 54-64 (Gas and St.)	Baltimore	1.70	....	3.00	2.85@ 3.10
Kanawha lump	Columbus	2.35	2.45	2.90	**3.00@ 3.25**
Kanawha mine run	Columbus	1.55	2.15	2.65	2.50@ 2.75
Kanawha screenings	Columbus	1.45	1.70	2.00	**2.00@ 2.35**
W. Va. Splint lump	Cincinnati	2.00	2.65	2.75	*2.50*
W. Va. Gas lump	Cincinnati	1.75	2.40	2.75	**2.75@ 3.00**
W. Va. mine run	Cincinnati	1.55	1.95	2.40	**2.35@ 3.00**
W. Va. screenings	Cincinnati	1.40	1.90	2.20	**2.25@ 2.75**
Hocking lump	Columbus	....	2.65	3.05	**3.00@ 3.25**
Hocking mine run	Columbus	....	2.15	2.90	2.75@ 3.00
Hocking screenings	Columbus	....	1.75	2.15	**2.00@ 2.50**
Pitts. No. 8 lump	Cleveland	2.60	3.40	3.25	2.75@ 3.25
Pitts. No. 8 mine run	Cleveland	$1.80	$2.55	$2.90	**$2.85@$3.10**
Pitts. No. 8 screenings	Cleveland	1.85	2.55	2.90	**2.85@ 3.10**
Midwest					
Franklin, Ill. lump	Chicago	3.45	3.45	3.45	3.30@ 3.65
Franklin, Ill. mine run	Chicago	2.75	2.75	3.00	2.75@ 3.25
Franklin, Ill. screenings	Chicago	2.65	2.75	3.00	2.75@ 3.25
Central, Ill. lump	Chicago	2.60	2.65	2.75	2.60@ 2.85
Central, Ill. mine run	Chicago	2.60	2.65	2.75	2.60@ 2.85
Central, Ill. screenings	Chicago	1.85	1.85	2.00	1.75@ 2.25
Ind. 4th Vein lump	Chicago	3.15	3.15	3.15	3.00@ 3.25
Ind. 4th Vein mine run	Chicago	2.45	2.50	2.50	2.25@ 2.75
Ind. 4th Vein screenings	Chicago	2.00	2.25	2.25	2.00@ 2.50
Ind. 5th Vein lump	Chicago	2.60	2.60	2.60	2.50@ 2.75
Ind. 5th Vein mine run	Chicago	2.60	2.60	2.60	2.50@ 2.75
Ind. 5th Vein screenings	Chicago	2.20	2.40	2.40	2.25@ 2.50
Standard lump	St. Louis	2.65	....	3.15	.....
Standard mine run	St. Louis	1.90	....	2.75	.....
Standard screenings	St. Louis	1.70	....	2.75	.....
West. Ky. lump	Louisville	2.45	2.20	2.60	**2.75@ 3.00**
West. Ky. mine run	Louisville	1.90	2.00	2.60	**2.50@ 2.75**
West. Ky. screenings	Louisville	1.90	2.25	2.60	**2.50@ 2.75**
South and Southwest					
Big Seam lump	Birmingham	2.00	2.00	2.00	1.95@ 2.10
Big Seam mine run	Birmingham	1.70	1.70	1.70	1.50@ 1.90
Big Seam (washed)	Birmingham	1.85	1.85	1.85	**2.00@ 2.25**
S. E. Ky. lump	Louisville	2.25	2.40	2.75	**2.75@ 3.00**
S. E. Ky. mine run	Louisville	1.70	2.40	2.75	**2.75@ 2.85**
S. E. Ky. screenings	Louisville	1.50	1.70	2.75	*2.50@ 2.75*
S. E. Ky. lump	Cincinnati	1.90	2.40	2.90	*2.50@ 2.75*
S. E. Ky. mine run	Cincinnati	1.60	2.00	2.40	**2.40@ 2.75**
S. E. Ky. screenings	Cincinnati	1.45	1.65	2.25	**2.35@ 2.65**
Kansas lump	Kansas City	4.25	4.25	4.25	4.00@ 4.50
Kansas mine run	Kansas City	4.00	4.00	4.15	4.00@ 4.25
Kansas screenings	Kansas City	2.50	2.50	2.65	2.50@ 2.75

*Gross tons, f.o.b. vessel, Hampton Roads.
†Advances over previous week shown in **heavy type**, declines in *italics*.
Note—Smokeless prices now include New River and Pocahontas.

How the Coal Fields Are Working

Percentage of full-time operation of bituminous coal mines, by fields, and as reported by the U. S. Geological Survey in Table V of the Weekly Report.

	Six Months July to Dec. 1921	Jan. 1 to Apr. 1, 1922 Inclusive	Apr. 3 to Apr. 22, 1922 Inclusive	Week Ended Apr. 22
U. S. Total	45.6	55.7	....	....
Non-union				
Alabama	63.5	64.6	71.3	68.0
Somerset County	55.5	74.9	76.7	60.8
Panhandle, W. Va.	55.3	51.3	30.9	31.1
Westmoreland	54.9	58.8	73.7	66.0
Virginia	54.8	59.9	64.3	70.9
Harlan	53.3	54.8	39.0	47.8
Hazard	51.7	58.4	54.1	69.5
Pocahontas	49.8	60.0	68.3	69.0
Tug River	48.1	63.7	70.8	76.3
Logan	47.6	61.1	66.8	66.1
Cumberland-Piedmont	46.6	50.6	8.4	9.0
Winding Gulf	45.7	64.3	63.0	62.5
Kenova-Thacker	38.2	54.3	67.1	71.9
N. E. Kentucky	32.9	47.7	55.6	58.3
New River‡	24.3	37.9	7.3	6.1
Union				
Oklahoma	63.9	59.6	18.4	17.0
Iowa	57.4	78.4	0.0	0.0
Ohio, north and central	52.6	46.6	0.0	0.0
Missouri	50.7	66.8	0.1	0.0
Illinois	44.8	54.5	0.0	0.0
Kansas	42.0	54.9	9.7	29.0
Indiana	41.4	53.8	0.0	0.0
Pittsburgh†	41.2	39.8	0.0	0.0
Central Pennsylvania	39.1	50.2	11.9	10.3
Fairmont	35.3	44.0	5.6	8.4
Western Kentucky	32.5	37.7	23.0	1.0
Pittsburgh*	30.4	31.9	0.0	0.0
Kanawha	26.0	13.0	0.7	0.7
Ohio, southern	22.9	24.3	0.0	0.0

* Rail and river mines combined.
† Rail mines.
‡ Union in 1921, non-union in 1922.

West Virginia is furnishing a large tonnage for coke making, replacing lost Connellsville production.

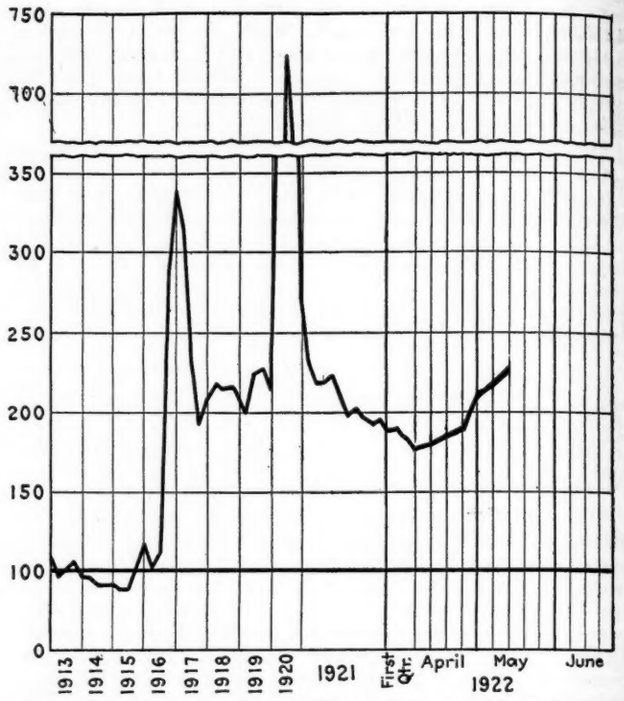
ANTHRACITE

With the exception of a few cars of steam sizes dredged from the rivers, the anthracite mining industry is at a standstill. Production during the week ended April 29 is estimated at only 6,000 tons.

All-rail movement to New England during the week ended April 29 totaled 501 cars, as compared with 371 during the preceding week. There is no interest being shown in the Lake market, as stocks on the Northwestern docks are sufficient to last through the summer and these dock interests are of course unwilling to enter into negotiations until the new mining conditions shall have been determined.

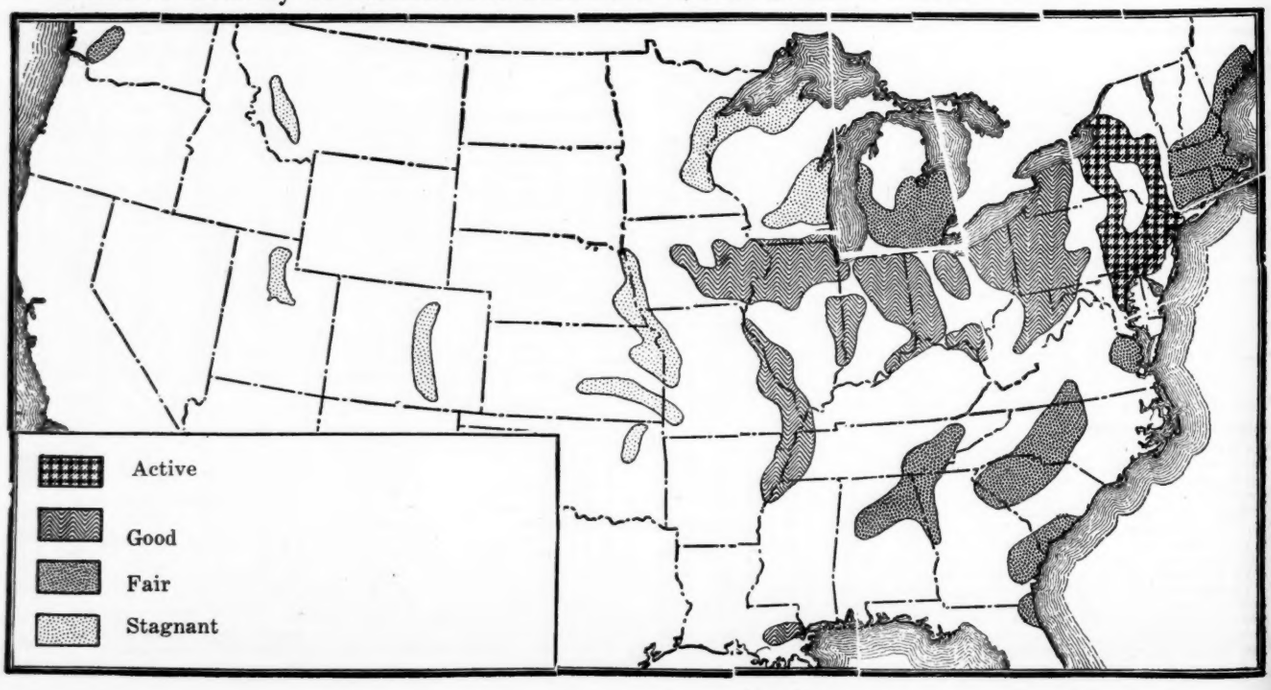
The market is almost lifeless. The light domestic tonnage on wheels is not easily sold and prices are no stronger. At New York there is still some coal in boats, but dealers are in no hurry to replenish their stocks. Retailers have reduced their supplies to the point where they no longer express any fear of possible lower costs to come after mining is resumed.

There is enough pea at the mines to last all summer if necessary. Buckwheat No. 1 is still available but with other sizes well disposed of the steam market is devoid of any activity that might be expected.



Coal Age Index 230, Week of May 8, 1922. Average spot price for same period, $2.78. This diagram shows the relative, not the actual, prices on fourteen coals, representative of nearly 90 per cent of the total output of the United States, weighted in accordance first with respect to the proportions each of slack, prepared and run-of-mine normally shipped and second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke, 1913-1918," published by the Geological Survey and the War Industries Board. (Pittsburgh and Standard prices not included in figures for last week.)

Relative Activity of Markets for Bituminous Coal at End of Fifth Week of Strike



Foreign Market And Export News

British Production Declines Sharply; Little Stimulus from U. S. Strike

EASTER week produced a marked decline in the British coal output. Tonnage mined was 3,544,000, the lowest since the Christmas holiday period, according to a cable to *Coal Age*. The output for the previous week was 4,384,000 gross tons.

Demand is steady and prices are firm for the best grades. Other coals show a softening range. Germany and France are making inquiries for tonnage. It was thought that producers were holding back in the belief that the strike in the United States would afford an unusual market, but American and Canadian inquiries have disappeared in the past ten days, although a number of exporters are offering coal in that direction. Aside from the diversion of a few orders from South America and the Mediterranean the stoppage has had no beneficial effect on the British coal trade.

Merchants are satisfied that although there are no phenomenal inquiries from abroad, contracts are coming in at a steady pace and most pits are booked up. Norwegian State Railways have bought 45,000 tons of best steams, Russian Co-operative Societies, 25,000 tons best steams, Malmo Cement Works, 20,000 tons second gas coals, and Bordeaux gasworks, 8,000 tons best Durham gas coals.

Hampton Roads Has Good Week

Activity in all branches is holding its own, with prospects of continued brisk business. Prices continue upward gradually, the best grades reaching the highest point in the last twelve months. Continued scarcity of high-volatile kept those prices extremely high.

Scarcity of coal in ports to the north appear to be having a stimulating effect. Mines serving the port in some instances reported capacity output, while others reported no unusually great demand for coal.

Export business was better, while shipments to New England were slightly below normal. Bunkering is gradually picking up, on the crest of the increase in general shipping. The N. & W. Piers had the bulk of the business, bidding fair to set a new high record of dumpings.

Coal Paragraphs from Foreign Lands

ITALY—Cardiff steam first is now quoted at 42s. 3d., according to a cable to *Coal Age*. Last week's quotation was 42s. 9d.

Coal landed at Genoa during 1921 totaled 1,772,535 tons (1920, 1,649,500), which compares with a pre-war total of 3,250,000 tons. However, the arrivals at the Spezia port are increasing, and amount for 1921 to 371,863 tons, against 250,000 tons before the war.

GERMANY—Production of coal in the Ruhr region during the week ended April 22 was 1,525,000 metric tons, according to a cable to *Coal Age*. In the preceding week 1,578,000 tons were mined.

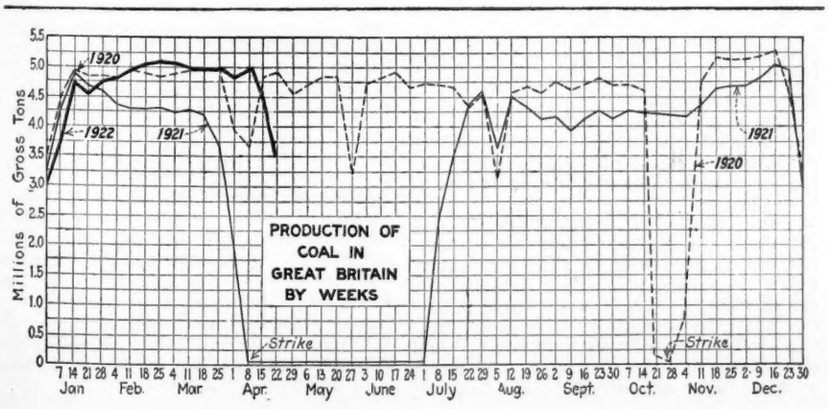
Outside coal is now exempted from the coal tax, according to a recent ruling which has been put into effect at Frankfort on the Main here. The present coal tax rate is 40 per cent of the home price. Anticipating this action, German coal buyers recently made a large number of inquiries for British coal, and considerable business is expected to result.

FRANCE—According to *Le Temps* the January output was 2,594,914 tons and 2,434,506 tons in February as against 2,630,661 tons in December, 1921. The production of lignite was 74,735 tons in January and 67,133 tons in February. In the Sarre basin the production of coal totaled 863,292 tons and 888,184 tons in January and February respectively.

INDIA—The coal market has a tendency toward firmness. Calcutta coal is scarce. Foreign coal is arriving. More than 26,000 tons were imported during the first week in April of which about 9,220 came from the United Kingdom and the rest from Africa.

BELGIUM—Production during February amounted to 1,759,670 tons, divided as follows: Mons district, 354,070 tons; Centre, 298,250; Charleroi, 615,010; Namur, 49,680; Liége, 416,660; Limbourg, 26,000. Stocks at the end of the month totaled 901,920 tons. Compared with the output of 1,871,630 tons in January and the monthly average for 1921 of 1,815,564 tons the February figures showed a slight reduction.

The Belgian coal market is not lively and rates show no change. Domestic coals remain weak. It appears that an agreement regarding wages is on the point of being reached on the basis of 7 or 8 per cent, not 10 per cent, as proposed by the owners.



Hampton Roads Pier Situation

	Week Ended April 27	Week Ended May 4
N. & W. Piers, Lamberts Point:		
Cars on hand	2,569	**2,141**
Tons on hand	138,617	119,620
Tons dumped	188,019	201,641
Tonnage waiting	22,000	15,000
Virginian Ry. Piers, Sewalls Point:		
Cars on hand	1,333	973
Tons on hand	66,650	48,650
Tons dumped	92,172	122,391
Tonnage waiting	16,000	10,757
C. & O. Piers, Newport News:		
Cars on hand	921	642
Tons on hand	46,050	32,100
Tons dumped	63,271	63,433
Tonnage waiting	2,251	4,290

Export Clearances, Week Ended, May 4, 1922

FROM HAMPTON ROADS:

	Tons
For Atlantic Islands:	
Nor. S. S. Tune, for Curacao	2,643
Am. Schr., Nat. L. Gorton, for Barbados	268
For Brazil:	
Br. S. S. Boswell, for Buenos Aires	2,291
Br. S.S. Madras Cty, for Rio de Janeiro	7,117
For Chile:	
Am. S.S. West Jaffrey, Chilean ports	5,005
For Cuba:	
Nor. S.S. Munorway, for Havana	5,896
For Greece:	
Grk. S.S. George M. Embricos, for Piraeus	9,981

Pier and Bunker Prices, Gross Tons

PIERS

	April 29	May 6†
Pool 9, New York	$6.15@$6.40	**$6.25@$6.50**
Pool 10, New York	5.80@ 6.10	**6.15@ 6.35**
Pool 9, Philadelphia	6.10@ 6.50	**6.30@ 6.55**
Pool 10, Philadelphia	5.75@ 6.10	**6.00@ 6.35**
Pool 71, Philadelphia	6.50@ 6.65	**6.50@ 6.80**
Pool 1, Hamp. Rds.	4.75@ 5.25	**5.30@ 5.80**
Pools 5-6-7 Hamp. Rds	5.25@ 5.40	**5.50**
Pool 2, Hamp. Rds.	4.75@ 4.85	**4.95@ 5.15**

BUNKERS

Pool 9, New York	$6.45@$6.70	**$6.60@$6.80**
Pool 10, New York	6.10@ 6.40	**6.45@ 6.65**
Pool 9, Philadelphia	6.40@ 6.60	**6.50@ 6.75**
Pool 10, Philadelphia	6.00@ 6.40	**6.15@ 6.60**
Pool 1, Hamp. Rds.	4.95@ 5.00	**5.90**
Pool 2, Hamp. Rds.	4.80	**5.25**
Welsh, Gibraltar	43s. f.o.b.	43s. f.o.b.
Welsh, Rio de Janeiro	55s. f.o.b.	55s. f.o.b.
Welsh, Lisbon	43s. f.o.b.	43s. f.o.b.
Welsh, La Plata	50s. f.o.b.	50s. f.o.b.
Welsh, Genoa	43s. t.i.b.	43s. t.i.b.
Welsh, Messina	38s. f.o.b.	38s. f.o.b.
Welsh, Algiers	41s. f.o.b.	41s. f.o.b.
Welsh, Pernambuco	62s. 6d. f.o.b.	62s. 6d. f.o.b.
Welsh, Bahia	62s. 6d. f.o.b.	62s. 6d. f.o.b.
Welsh, Madeira	42s. 6d. f.a.s.	42s. 6d. f.a.s.
Welsh, Teneriffe	40s. 6d. f.a.s.	40s. 6d. f.a.s.
Welsh, Malta	44s. 6d. f.o.b.	44s. 6d. f.o.b.
Welsh, Las Palmas	40s. 6d. f.a.s.	40s. 6d. f.a.s.
Welsh, Naples	38s. f.o.b.	38s. f.o.b.
Welsh, Rosario	52s. 6d. f.o.b.	52s. 6d. f.o.b.
Welsh, Singapore	57s. 6d. f.o.b.	57s. 6d. f.o.b.
Port Said	46s. 6d. f.o.b.	46s. 6d. f.o.b.
Alexandria	45s.	*44s.*
Capetown		35s. 3d.

Current Quotations British Coal f.o.b. Port, Gross Tons

Foreign Quotations by Cable to Coal Age

Cardiff :	April 29	May 6†
Admiralty, Large	28s. 6d.	**28s6d@28s9d**
Steam, Smalls	19s.@20s.	19s.@20s.
Newcastle:		
Best Steams	23s@24s	23s.@24s.
Best Gas	23s.@24s.	**24s.**
Best Bunkers	22s.@22s. 6d.	**22s. 6d.**

†Advances over previous week shown in **heavy type**; declines in *italics*

North Atlantic

Increased Output Fails to Stem Rising Tide of Prices

Consumers Still Rely on Reserves Rather Than Enter High-Priced Spot Market—Buyers in Need Increasing—Steadying Efforts Made.

PRODUCTION has been increased recently, but not sufficiently to stem the rising tide of prices. Line trade is picking up in excess of the supply and hardening prices have resulted. The flood of Southern coals to Philadelphia and New York has been checked by the better markets in other sections for the smokeless varieties.

Consumers still prefer to use reserves rather than enter the high-priced spot market, but the number who must have coal is increasing. The more substantial factors in the trade fear the effect of this rising market and are advising buyers to hold off unless buying is absolutely necessary. These shippers are offering to buy coal, when needed, at the best figure plus a reasonable commission.

NEW YORK

With supplies becoming shorter and the prospects not bright for an early ending of the strike, quotations are showing more strength. There were but a few more than 1,000 cars at the local loading piers on May 5, a large decrease from the corresponding day of the previous week.

Comparatively few buyers were around, but those who wanted coal badly were not particular as to whether it was Pool 9 or 10, so long as it looked like coal and would burn.

The shipping of Southern coals west has tended to strengthen quotations, some ranging around $5.40 at Hampton Roads, which made the coal available for local buyers at around $6.50, if taken from the vessel in which it came. To make these coals more available, however, some shippers have undertaken to load the coal into small barges, quoting $6.40@$6.75.

Local houses are watching closely the importation of English coals. Some inquiries regarding the local situation have been received but it is not thought English mine owners will undertake to send their coals to these shores unless they feel sure that they could sell it at around $8 per ton.

BALTIMORE

The call for fuel is growing rapidly and prices are tightening.

It is impossible to quote a really stable price list, but as a whole it may be said that the offerings of Pool 9 and 71 are quickly absorbed at $3.25@$3.50, with sales occasionally up to $3.75@$4. Gas coals too are quite strong, the quotations on Fairmont running $3.10@$3.50 a net ton. Bunker coals of usual delivery here are quoted $6.60@$6.85, alongside. A feature of this business, however, is had in receipts here by barges of coal loaded at Hampton Roads, and which has been sold as low as $5.50, alongside.

While the export situation is at a complete standstill, not a single ship having loaded on foreign account for nearly a month, an increase is noted in intercoastal coal shipment. Recently there was a shipment of 909 tons for Seattle, 210 tons for Portland, Ore., 300 tons for Los Angeles and 818 tons for San Francisco.

FAIRMONT

Production during the last week of April was the largest since the beginning of the strike. Probably 5,000 miners are now at work. The larger companies, however, are not operating. Demand in the East is strong, the price ranging $2.50@$3.

CENTRAL PENNSYLVANIA

The effectivenes of the strike in this field is best told by production figures for April, which show the output to have been 11,914 cars as against 84,828 cars for March.

Operators claim the peak of the strike has been passed. This would appear to be borne out by the fact that during the week ended April 29, the district produced 2,445 cars as against 2,057 cars in the previous week.

There was but little change, however, in the strike conditions at the end of the fifth week. Efforts are being made in the Somerset District to operate the mines and both the Berwind-White and the Lochrie interests about Winber are increasing their output.

UPPER POTOMAC

Although efforts of the U. M. W. are not abating, there is a drift of men back to the mines and production is being slowly increased. Prices have stiffened to a considerable extent. Buyers are not finding it an easy matter to secure all the coal needed in this territory. Suspension continues to be general throughout the Georges Creek region.

PHILADELPHIA

While production has been increased recently, still it has not been on a sufficient scale to hold back prices. The trend to higher figures has been maintained all around.

Coal is not easily obtainable, and Pool 1 is almost out of the market. Some consumers with buyers stationed in the region snap up this grade even before it is in the cars.

This matter of high prices is not satisfactory to the more substantial factors in the trade, as they fear many more increases will mean trouble for all producers. There are shippers who are advising consumers to hold off buying unless absolutely necessary and thus help to stem the tide. Shippers such as these are offering their services to consumers to buy coal at the best figure plus a fair commission.

Even yet the consumer is not actively seeking coal, outside of the big buyers allied with the iron and steel trade, which industry seems to maintain its improvement.

Coke

UNIONTOWN

Operators are commencing to realize what the ultimate effect of the strike will be upon the market of the future regardless of its ultimate settlement. That view is brought closer home by the report that efforts are being made for an adjustment of freight rates from the Virginia fields to the Eastern market, which will enable producers there to compete better with Connellsville.

To what extent the Carnegie Steel Co. will return to the Frick mines in the Connellsville region for its byproduct coal is also another question. Since the construction of the Clairton byproduct plant the Frick mines have been depended upon almost entirely for raw coal. That portion of the needed tonnage cut from the Connellsville field is now being received from West Virginia.

The coal market has taken on considerable life and while there is no trace of panicky feeling there is more demand than can be supplied. All grades of steam coal are quoted $2.90@$3.10 while byproduct is selling $3.10@$3.25. The coke situation is unchanged, there being no distinction between furnace and foundry, with $6@$6.75 prevailing for both grades.

CONNELLSVILLE

Production of coke has been practically stationary since about April 25, at approximately one-third the rate in the latter part of March. Merchant production has decreased slightly less in percentage than production by the furnace ovens. Almost all the merchant production is going out on contract. Offerings of furnace coke are very light but demand is equally light as the average furnace would not think of paying prices asked. The market, of paying prices asked.

The Carnegie Steel Co. has been operating 32 blast furnaces since the middle of April, against 34 on April 1. Pig iron production of the Pittsburgh district was at a shade higher rate in April than in March. Once the district was entirely tributary to the Connellsville region, but now it has the Clairton byproduct plant, the largest in the world, the large beehive plant of the Jones & Laughlin Steel Co., the new byproduct plant of the same interest and the byproduct plant at Midland of the Pittsburgh Crucible Co. These plants had stocks of coal when the strike started and can draw coal from various districts where it is now available.

BUFFALO

The outside trade is about at a standstill. The beehive oven districts are idle, so that jobbers are seldom able to obtain anything. Local furnaces have their own ovens and are for the most part independent of outside supplies. Semi-nominal quotations are $5.25@$5.50 for 72-hr. Connellsville foundry, $4@$4.25 for 48-hr. furnace and $3.50 for stock.

Anthracite

Retail Stocks Disappear But Apathy Continues

Consumers Buy Only to Piece Out Bare Needs—With Dwindling Stocks Retailers Cease Anxiety Over Freight Reduction—Loaded Boats Plentiful at New York; Buyers Scarce.

LACK of demand is the continued feature of the market. Even with no coal being produced the retail trade is sluggish, the consumer showing no anxiety over the situation and buying only in small lots to piece out his season's requirements. Yard stocks are gradually being worked off, however, and retailers have now passed the stage where anxiety is expressed over reduced freight rates or mine prices, as they have converted most of their tonnage into cash.

New York Harbor still has plenty of loaded boats, but buying is slow. The steam trade is sluggish, although buckwheat is now the only size easily obtainable. No interest is yet being shown in the Lake market.

ANTHRACITE FIELDS

The fifth week of the strike passed quietly, aside from a certain restlessness and numerous rumors of settlement circulating among the men. Some strikers are now feeling the pinch of unemployment. Merchandise is on a strictly cash basis as merchants remember the 1902 strike which caused them heavy losses through credit extension at that time.

The men appear to have lost some of their feeling of confidence. Increased wages do not seem as likely to them now and many consider that a resumption at the old wages would be a satisfactory settlement.

NEW YORK

Lack of demand with no coal being produced is the outstanding feature of the local market. Middle houses who have coal in boats or are in a position to get some receive few inquiries. No particular effort is being made to induce buying.

Consumers are buying at such a slow pace that retail stocks are holding out better than was anticipated. Some dealers who last month believed their stocks would be cleaned up early in May now count on having some coal throughout the entire month.

Most of the domestic coals available have been loaded into boats and this is independent product. The companies have moved nearly all of their coals above pea size. The latter continues plentiful with no call for it.

Quotations for independent domestic coals practically mean nothing now. It was said last week that a prospective buyer had been offered a cargo of stove coal on a basis of $8.10 at the mine, whole other quotations for the same size ranged as high as $8.75. Stove was in better demand than either egg or chestnut.

Loaded boats of pea coal were being quoted $7.50@$8.50, alongside. There was practically no change in the steam coal situation and the demand was quiet.

PHILADELPHIA

As yet the weather has failed to warm up and much more coal is being burned than usual at this time of the year. It is when the occasional warm day appears that the real state of trade is discernible, as there is an immediate cessation of all deliveries.

Many yards are entirely out of nut, and others are holding back what little they have for special business that they take care of all season long. Pretty much the same thing can be said of stove coal. Pea has been a good mover recently, but even though the dealer can replace this size there is little buying done.

The yards are now beginning to show signs of emptiness, which is just what the dealers want. They have now passed the stage where anxiety over reduced freight rates or mine prices no longer cause apprehension, as they have converted most of their stocks into cash.

Steam trade is quiet, with buckwheat about the only size to be had. The companies have big stocks and are anxious to move it soon. Quite a little of it will soon reach the two-year storage limit, when according to the freight tariff, it will have to take a local rate to destination. Yet despite the almost entire absence of rice and barley the consumer shows little disposition to take buckwheat.

Retailers have settled themselves down to a long idleness, and this is as much due to the consumers' increasing lack of interest as anything else.

BALTIMORE

There is little to report except that the small supplies in yards keep dwindling. Dealers have received only two carloads during May and there is little prospect of any immediate shipment.

The smaller yards are gradually running out of fuel. The general public does not seem to be at all worried, being firm in the belief that it can be taken care of later in the year. The amount of business on the books on the majority of dealers is much smaller than in normal seasons.

BUFFALO

"We have coal enough to last till fall and if the strike is not settled then we can still keep up with our winter trade," is the claim made by a representative of one of the larger anthracite companies. It is quite possible that he may be called on to make his words good, for the strike is much more complete than the bituminous and promises to hold longer.

At the same time consumers are not buying any coal of account, so that the stocks on hand are not moving. There is considerable egg in storage and some companies are said to have plenty of chestnut not far away. The trade as a whole is much more stagnant than bituminous.

Only two anthracite cargoes have been shipped, 19,500 net tons, and one of coke, 2,500 tons. Another coke cargo is chartered, but it has not arrived yet. The amount of anthracite shipped in April last season was 257,705 tons.

BOSTON

A few independents and brokers are offering domestic sizes at around $9, f.o.b. mines, but sales are meager. The producing companies that were picking up coal from storage piles or were gradually selling coal on cars that were unbilled have now very nearly cleaned up the odd lots that were available. A small number of cargoes are still coming forward from New York piers, but another fortnight will probably see the last of them.

Retail business continues extremely dull. The public preserves its non-buying attitude, preferring to run the risk of a tight market later on. It is amazing how little interest is taken in the suspension.

West

SALT LAKE CITY

Retail coal dealers of Salt Lake City and Ogden have announced a new price schedule as a result of the reduction made by the operators, following the new wage scale. Hereafter lump coal will be $9; domestic lump, $8.50; egg, $8; screened slack, $4.50, and mine slack $4. Business is poor as a result of the rising temperature. The coal trade generally is not suffering from the strike, tense though the situation is in the mining fields. Enough coal is being produced to meet all of the state's light demand.

KANSAS CITY

The coal trade in the Southwest is just marking time. No coal is being produced, except at a few small cooperative mines and there is not much demand for what little is being mined. These small mines are not equipped to screen the coal, and the demand for mine run is never strong in this section. However if the strike continues for another 30 days the steam plants will have to use whatever they can get, as the storage coal will not last much longer than that.

The outlook for business when the mines do open, is good as the farmers have been getting a better price for their grain and live stock since the reduction in freight rates, which has also had the effect of stimulating buying of farm machinery and lumber for buildings. On top of this, the excessive rains in the plains country, almost insures a good wheat crop. Altogether the farmer is beginning to see a way out for the first time in several years, and as this country is dependent on agricultural and live stock, it argues well for business in general.

Prices are practically unchanged from the pre-strike level.

Chicago and Midwest

Kentucky Flood of Coal Gorges Western Market

But Heavy Flow from Mines Continues In Other Directions—Many Jobbers Are Hard Hit—Gentle Swelling of Demand Is Seen—Prices Firmer.

THIS region has weathered another week of light demand and plentiful supply, and the game of hunting stealthily for buyers and of waiting daily for a burst of railroad business continues. The flood of western Kentucky, which started two weeks ago, largely on the strength of the fact that railroads and some other big consumers were due to come into the market, gorged, backwatered and partially drowned many of the jobbers who brought a large volume of it into the Chicago region on consignment. Heavy shipments from the mines continue in other directions, however. A gentle demand has begun to develop throughout the Midwest for various coals so that the outlook for selling agencies with Eastern and Kentucky connections is not black. It is merely a dull gray.

Generally speaking, Midwestern companies with eastern Kentucky operations have been enjoying a pleasant time since the strike started. Many non-union mines which began cautiously, fearful lest the light market they found would disappear almost any morning, have been going stronger and stronger, thanks to Lake and steel trade, until now they are working full tilt and selling every ton at a fair profit. With the slow but general upturn of prices, coal from those fields sold through Midwestern houses has made a small section of the coal trade reasonably prosperous.

As for operators with Indiana and Illinois mines, little can be said. They have sold off practically all the fuel stocked at mines at pre-strike prices with a strengthening of the figures on screenings, as that class of coal became scarcer and scarcer. Today the region is practically barren.

Eastern coals have come into the Midwest in quantities always ample to meet every trace of demand. Quotations on smokeless mounted because operators were able to sell so much of their output East that Chicago was no longer a rich objective. During the past week shipments came from new sources because one of the largest Pocahontas operators was closed down. This scattered the business somewhat and gave the surface impression that smokeless business was livelier. Mine run went steadily at various figures from $2@$2.50 and the little lump that was handled brought $2.75@$3.

Peace prevails in most of the mining fields. It is to be noted that some miners' union members are working in thinly scattered numbers at much reduced wages without interference from the union officials. These men are doing the odd jobs of repair and maintenance around mine properties.

CHICAGO

Nothing disturbed the calm of the Chicago coal market during the past week except the travail which certain jobbers suffered in their effort to sell a flood of western Kentucky coal here without taking a loss. A few wise men who booked most of their customers before they bought anything in the field have done comfortably well. Many others, less wise, bought at $2.50 and even as high as $2.75 and sold from $2.50 down to as low as $2.30.

However, there is a gentle flow of business through this market which is swelling slightly. General industrial demand is extremely low but not lying flat on the hard bottom as it was a couple of weeks ago. Steel companies continue to be the leading buyers in small quantities and other industries making staple products are taking a little coal from day to day and protecting their stocks. The coal trade confidently expects the railroads to begin taking a heavy volume soon. Up to date they have only just begun to buy.

A small quantity of smokeless coals reach here daily at prices which remain reasonably stiff, largely because of the absorption of those coals in the East. Dealers are taking a little sized Pocahontas nowadays to satisfy a light demand from householders who are beginning to worry for fear they will not be able to afford anthracite if mining does not resume until fall. Smokeless mine run is quoted here at about $2.25 and lump up to $3.

WESTERN KENTUCKY

Demand continues fairly keen though buyers are fewer. This is due largely to the fact that operators are not quoting prices, or accepting new business, until they dispose of orders on hand, figuring that prices may be higher at time of shipment. As a result about the only quotations available are those of small mines, and quotations on resale offers of jobbers and brokers who are trying to unload large tonnages they contracted for recently.

Reports from the railroads indicate that there is more coal moving out than at any previous time in the history of the industry. On the L. & N., more than 5,000 cars increase was shown in April over March, which was an active stocking month, and April demand did not become heavy until just before the close of the month. From present indications May movement should set a high record.

For the past few days there has been some congestion and difficulty in getting enough cars on the Hazard branch, and also in the Cumberland Valley division of the L. & N.

Western Kentucky is starting its quotations around $2.50@$2.60 for mine run, with screenings at $2.60 and up and lump $2.75@$3. There is some shading. Screenings are in strong demand but light supply. Trade is expected to grow strong again in a few days.

INDIANAPOLIS

Coal on track in Indiana is still without a market. There are no quotations going out on any kind of fuel. Since April 1 no coal has moved in the state except from a few of the wagon mines in the south central part and a little from mines in northern and Western Kentucky. There has been little Indiana demand as yet for non-union coal.

Some of the producers in Indiana have farmed out their best salesmen to the bigger retail coal merchants in an effort to aid in getting rid of present stocks. Several instances are to be noted where men formerly connected with operators' offices here in Indianapolis, now are working with big retail or jobbing institutions until the end of the strike.

SOUTHERN ILLINOIS

Continued quietness prevails in the Carterville field and Duquoin and East Jackson county districts. There is a little coal at a few of these mines, but almost nothing on the open market.

Similar conditions exist in the Mt. Olive and Standard fields. There is still a little coal on hand, but prices are quoted only from day to day. A few cars of domestic sizes are available but no steam, except that unloaded from the Standard field several months ago on the industrial coal roads near East St. Louis, where a few thousand tons of steam sizes were piled up and a little railroad fuel held in the field.

ST. LOUIS

The market is easy with only a little demand for steam sizes here and there. The domestic demand is about gone. A few railroads have been in the market. The Wabash bought, it is understood, about 1,500 cars of Kentucky mine run at from $2.10 to about $2.40. The Frisco bought about 500 cars ranging $2.10@$2.20. The Union Electric Light & Power Co. got in the market for a few hundred cars at slightly above $2. Country conditions are quiet on both steam and domestic, with no demand.

LOUISVILLE

Some railroad inquiries are now being felt in this market and larger rail demand is expected soon. Consumption of the coal-carrying lines in this region is steadily increasing. Not many operators are quoting coal now. They are waiting until they fill orders already booked. The market is so firm that jobbers and brokers do not hesitate in taking on prospect coal offered at anything below the average market.

So far the coal strike does not seem to be affecting industrial demand to any extent. Retailers are meeting with a slightly better stocking demand. Lake movement is better, and the steel and metal working industries are buying more freely. Cement and brick plants are buying well as building supplies are quite active generally.

Northwest

Gen. Dullness Commands Entire Northwest Now

Industrial and Back-Country Call for Coal Is Faint—Shipping to Docks Has Halted But Stocks on Hand Are Good for All Summer.

COAL business is sluggish from the docks as far Inland as water-borne coal ordinarily penetrates. Back-country trade is flat, industries have not revived as it was expected they might by this time and demand generally is extremely light.

The north and west-bound coal traffic which started up moderately with the opening of the Lake season has about died out, so that the supply reaching the docks is small. Evidently most of the cargoes which came up early, were those loaded last fall at Lower Lake ports. However, nobody is worrying, for at the present rate of disposal, the 2,700,000 tons of soft coal and 300,000 tons of anthracite on the docks will last all summer.

DULUTH

Shipments from docks fell off materially during April, according to figures just released. The total was 9,826 cars from the docks at Duluth and Superior, as against 21,249 cars in March this year and 5,831 in April last year. Although the shipments this year are more than last, for the same month, dock men say that this must not be taken as an indication of good trade, as shipments during 1921 were universally small.

Stocks on docks are still at high tide. Estimations put bituminous stocks at 2,700,000 tons and anthracite at 300,000. The most conservative estimators say that the Northwest will not suffer for coal until well into August. The majority opinion is that the coal on docks will last until the fall.

Several docks here have non-union buying connections, and these will bring coal to the Head-of-the-Lakes. Five cargoes, one of which was anthracite have already been received here. Three more have started from Lower Lake ports, and should arrive within a few days.

It was reported early in the season that some of the 35 cargoes loaded for the Head-of-the-Lakes at Lake Erie ports might be diverted to other places. This has happened. Sault Ste. Marie, Port William, Port Arthur, Ashland and other ports have received much of the coal which would have filled the docks here to overflowing.

Large consumers are well filled up The mines on the Iron Range are carrying over coal from last season and will use this as long as possible. The Steel Corporation has sufficient coal on docks to last some time, and the Zenith Furnace has received two cargoes this season, which makes its coal position easy.

The $6.50 price on lump which was mentioned two weeks ago as being made by some docks has become general. Run of pile is down to $6 and screenings are $4.25@$4.75, as quality dictates. This reduction seems to be conceded as necessary to get trade. It is thought that a resumption of the regular scale of $7, will be made as trade improves.

Anthracite is dead, and doubtless will remain so the rest of the summer.

MINNEAPOLIS

The strike has had no effect whatever here yet. It is causing no rush, no apprehension as to future supplies, no disturbance of any kind. There is a reassuringly large amount of coal on the docks. The opening of navigation brought up several cargoes of coal evidently loaded and stored on board over the winter.

Navigation opened about two weeks later than usual, but there was no call to rush operations, since there was nothing pressing to be moved by Lake. The expectation is that this season, in general, will be a much more active one than last. The iron ore production is expected to be double that of last year. This will mean a generally improved commercial situation that ought to be helpful. But if this expectation shall prove true, it will hardly register in the immediate future, nor have its effect upon the coal consumption.

MILWAUKEE

The coal business at Milwaukee continues flat and stale. Dealers report very little business. There is enough coal on the docks to last until fall at the present rate of consumption. Prices were not shaded on May 1, as some expected, and it looks as if there will be no change here until the settlement of the strike furnishes a basis for something different.

Coal receipts by Lake, which started out briskly at the opening of the season, have almost ceased. Sixteen cargoes were received during April, aggregating 8,000 tons of hard coal, and 100,309 tons of soft coal. One of the hard coal cargoes consisted of 700 tons of screenings which was brought down by the C. Reiss Coal Co. from its yards at Escanaba, Mich. Last year twenty-two cargoes were received durng April, the receipts aggregating 43,100 tons of anthracite, and 154,579 tons of soft coal. There have been no coal arrivals thus far in May.

New England

Cargoes on Hand Moving, Prices Show Upward Trend

Market Not Yet Up as Strong as at Roads—Aside from a Few June and July Buyers, Little Business Is in Sight.

A reflection of the stronger prices at Hampton Roads is now noticeable in this market. Cargoes on hand are being moved and quotations show more of an upward tendency than for several weeks, although the market has not yet risen as strongly as at the Roads. There are a few buyers yet to enter the market for a season's supply that usually is bought in June and July. Aside from this there is not much additional business expected for thirty days. The textile strike has removed much buying power that would otherwise be in evidence. Central Pennsylvania coals remain inactive in this territory.

Pocahontas and New River continued to climb upward during the week, especially at Hampton Roads. For two or three days there was every appearance of a flurry, a situation made possible by active demand in the West combined with a certain amount of buying by bunkering contractors at Philadelphia and at New York.

Most New River operations are shut down because of the labor difference, but Pocahontas output increases from week to week and it will soon become an interesting question whether the non-union mines can take care of current demand. If so many ships had not been converted to the use of oil, particularly those sailing from New York, it is probable there would have been a "squeeze" by this time.

For distribution Inland from points like Boston and Providence, there has also been a reaction in prices, but not so pronounced as at the Roads. There are a few buyers who are yet to come into the market for the season's supply that ordinarily is purchased in June and July, but aside from these there is no special demand expected during the next 30 days or so. Quotations at Mystic Wharf, Boston, have advanced sharply during the week from $6.15 to $6.50@$6.75. A few factors are asking $7 at the time this review is written.

Marine freights coastwise remain in easy shape; 90c. is about the going rate on steamers, Hampton Roads to Boston, while on large barges there are occasional charters at rates varying 5c. or so up and down. Smaller barges for light draft points are of course held at rates over $1.

At retail, in Boston, there continues keen competition for what contract business offers. Public institutions have been able to buy this week at $6.68 per net ton delivered, but apparently the wholesale market will soon correct this situation.

Eastern Inland

Industrial Revival Menaced By Strike and High Prices

Connellsville Coal in Demand as Eastern Buyers Reappear — Reserves Shrink, Stronger Call Near — Many Producers Recede from Extreme Wage-Cut Sentiment.

CONNELLSVILLE coal is again in strong demand, following the reappearance of Eastern buyers. Screenings are in very short supply as the lump market continues to lag.

Fear is expressed that the business recovery which is under way may be set back by a continuance of the coal strike. Reserves are melting and a stronger call is not far away. When it comes, the industrial revival will certainly be checked if coal prices are not reduced. This is causing a reversal of sentiment among many operators from the extreme wage-cut ideas originally held. Much of the Lake coal is going to Buffalo furnaces instead of to the Northwest.

CLEVELAND

Some leading operators are beginning to take an energetic stand for the opening of negotiations with the union. They believe that the strike should be called off and production resumed by June 1. Business recovery is under way and will continue to gather momentum unless the brakes are applied by too long endurance of the coal strike. In some quarters there is strong expectation that before long an invitation for a conference will be received from the union camp. If it comes there will be a demand for its acceptance.

Another interesting development has been the reversal of sentiment among many operators from the extreme wage cut originally suggested. Most of them now admit that any reduction that is obtained will be considerably smaller than at first considered possible.

Demand remains rather subdued. Most industries are believed to be near the fag end of their stocks, however, and difficulties are going to be met in obtaining fuel supplies before long.

Up to May 1, 823,000 tons of coal had been loaded at Lower Lake ports. This was about 400,000 tons behind last year's record.

PITTSBURGH

Appearance of buyers from the East has stiffened the Connellsville market, following its softening some ten days ago, and the market has been advancing by stages until at this writing it can be reported firm at $3, or up to the level of about three weeks ago.

Connellsville coal is the chief thing in the Pittsburgh market. There is no Westmoreland coal, except for an occasional offering of gas coal at $3.50 or higher, which does not interest consumers. The strip-mined coal on the Panhandle continues a factor as formerly. Its price is higher, $3.50 being obtained for lump and $3.25 for slack, against $3 ruling until recently. The coal is screened with a 1¼-in. screen, about half going through.

Most reports are that the production of coal in the general Connellsville region, whether coked at the mine or shipped, has been increasing somewhat in the past week or two, but it is far from certain this is the case. Some men have straggled back to work, but at some mines in operation the working force has decreased. No additional mines have been closed for more than a week. There are, of course, no developments in the regular union strike, and none are expected for weeks to come. When a mine is entirely idle, small groups of men applying for work are advised to secure more recruits so as to make it pay to open the mine.

COLUMBUS

With an appreciable increase in the demand the market has developed considerable strength. Prices are at the highest point of the year. The strength is most apparent in mine run, egg and screenings while lump is not sharing in the strength to any marked degree. In fact, lump and mine run are now at a parity in most of the fields while screenings are quite scarce and practically out of the market.

A considerable tonnage from West Virginia and Kentucky is now coming into the market. All of the coal mined previous to the suspension in Ohio fields has been cleaned up and thus fuel from the non-union fields is commanding a higher price. Logan County is producing a large amount and certain fields in Kentucky are also busy.

Indications point to a more active Lake season than was at first expected. Reports from the upper region show that a considerable tonnage is now being sold. It is believed that the Lake season will open actively in June as a good tonnage will be shipped to the Northwest.

EASTERN OHIO

In many cases, stock piles have been bolstered by purchases of non-union coal which is available in the spot market sufficient to meet all demands. The stripping mines continue to operate without any interruption and it is conservatively estimated that these mines are producing about 30,000 tons per week. However, there have been some cases of interference where union miners have marched upon certain stripping properties, and the employees persuaded to discontinue work.

A slowing down is reported in the Lake trade, with a little less than 1,000,000 tons of coal already dumped into boats at lower docks. This shipping during recent weeks has been principally from non-union mines in West Virginia and eastern Kentucky to Toledo and Sandusky, total number of cars on track at lower docks being placed at 5,200; dumpings are averaging around 700 cars per day.

Spot prices have shown some tendency to stiffen during the week and eastern Ohio stripping coal is quoted f.o.b. mines; slack, nut and slack and mine run, $2.85@$3.10; these same grades from non-union mines in West Virginia and Eastern Kentucky are quoted at from $2.15@$2.60.

Receipts of bituminous coal at Cleveland during the week ended April 29 were 962 cars; 841 cars to industrial concerns and 121 cars to retail yards, an increase of approximately 250 cars over the preceding week. Average weekly receipts during the first three months of the year were 1,512 cars per week. Current arrivals, coupled with reserve stocks on hand, have so far afforded an ample supply.

BUFFALO

Demand is so light that the prospect is good for a long holding out. Consumers are indifferent so that there is hardly any market at all worth the name. A few sales have been made at small advances. but as a rule the consumer is prepared to shut down rather than do anything that would encourage a general advance. The output is increasing and coal on the market is in excess of the demand.

Jobbers join the consumers in repudiating the asking prices of a dollar advance and do not seem to think that it will come up to any such figure. At any rate it is useless to urge much higher prices now. So all that can be done is to wait till the tension of the strike becomes more severe, then the weaker party will give way.

A fair quotation, bearing in mind that prices are varying widely, would be $3.50 for Youghiogheny gas lump, $2.75@$3 for Pittsburgh and No. 8 steam lump, $2.50 for Allegheny Valley and other mine run and $2.25 for slack.

DETROIT

About the only encouraging feature in the market is an improved demand from steel companies and an increasing number of inquiries from railroads. Among the general industrial buyers there is a continuance of the lack of interest that has been a marked characteristic ever since the beginning of the mine workers' strike.

Fine coal is particularly scarce at present. This condition being due not so much to consumption as to a diminuition in the quantity being produced at the mines, owing to reduction in sales of lump.

Purchasing by household consumers has practically been discontinued for the present. Dealers are holding larger stocks than the owners regard as desirable at this season of the year, with the possibility of a reduction in railroad freight rates in the foreground.

Smokeless lump and egg is $2.75@$3, mine run is $2.40 and nut, pea and slack, $2@$2.25. Mine run from eastern Kentucky is $3. West Virginia lump is $3, mine run, $2.50@$2.65, nut, pea and slack, $2.40.

NORTHERN PANHANDLE

A discreet silence is being maintained by operators as to developments. More than 50 per cent of the mines are continuing, despite the utmost efforts of the U. M. W. to close down all workings. There have been a number of evictions in order that company houses may be utilized for men willing to work.

Cincinnati Gateway

Market Prices Holding Up Coal Moves in Large Volume

Steel Mills Place Orders with Producers—Some Wholesalers Left Long on Tonnage—Heavy Buying by Large Users Stiffens Smokeless Quotations.

NEW buying tactics employed by the steel mills proved a quieting market influence last week. Orders are now being placed direct with some of the larger producers, and this has left a few wholesalers long on unsold tonnage. There has been no drop in market prices and coal is moving in larger volume than at any time since the strike began. Some smokeless producers have already sold their entire May output.

Heavy purchases of smokeless coals by railroads and other large buyers has stiffened that market. The general line demand also is improving at points to the north of this gateway, noticeable here for the first time since the strike began. Southeastern Kentucky prices rose to a better Western and railroad demand.

HIGH-VOLATILE FIELDS

KANAWHA

Production is still greatly limited. A large number of miners who have been on strike for the last month want to go to work but the large companies have told their men that when as many as 80 per cent evince the desire to do so then operations will resume. Mine run is now $2.50, with many large consumers seeking tonnage.

LOGAN AND THACKER

In markets reached by Logan products there was a perceptible stiffening during the closing day of April, resulting in further increases in production to approximately 60,000 tons a day. Steel companies are securing as much as 50 per cent of the output. The strike is not affecting conditions except to stimulate production. Prices are advancing although there is no such bidding as featured the middle of April.

With demand increasing, Thacker mines are shipping more coal. Demand is somewhat heavier in Western markets and more coal is being consigned to the Lakes. Railroads too are taking more. Although the tent colonies remain, the U. M. W. has been able to make no headway in bringing about a strike in Mingo.

NORTHEASTERN KENTUCKY

There were further increases in the demand during the week ended April 29. This stimulated production to about 25,000 tons a day. There are now no unbilled cars in this district. Not only is there a heavier demand at the Lakes but also in many Western markets. Tonnage losses due to the strike are negligible.

CINCINNATI

Steel mills have switched their purchases to direct deals with the large producers. Wholesalers and others had to be content with a range of $2.50@$2.75 for gas coals last week and some of it, getting on to demurrage, was offered and sold around $2.40. Steam grades were not nearly as active as they had been and some splints even sold below the $2.40-mark.

Miners seem to be bending toward their work better and there has been a steadier flow of cars through this gateway for the past ten days than at any time during the recent unpleasantness. Demand and prices at Toledo and Cleveland have stiffened. This is the first time in four weeks that the local price pulse has been reflected in other markets.

Heavy purchases made by the Pennsylvania of Pocahontas coals and other tonnage of quantity have stiffened the smokeless market. Lump held the advance scored late last week and prepared sizes are scarcer because of the large volume of coal that is being turned in as straight mine run.

Retail dealers are still fussing around with proposals of raising the price because of the advances that have been scored by the wholesale market. Smokeless lump is still quoted $7.50@$7.75, however, and mine run is $6.50. Bituminous lump is $6.25@$6.50 and slack, $4.75@$5.

LOW-VOLATILE FIELDS

NEW RIVER AND THE GULF

During the closing days of April New River prices stiffened to some extent with mine run quoted at $2.10 in Western markets and with lump also showing a tendency to advance. Approximately 40 of the 119 mines are in operation. The injunction in effect is expected to encourage men to return to work. More mines could be operated, producers assert, if there were a better demand.

The status of the Winding Gulf region is now about normal. The temporary injunction having been made permanent, there is reason to believe that this region will not be further affected by the strike. A larger production is impossible under existing market conditions. Mine run is gradually increasing in price, however, and now ranges $2.10@$2.25.

POCAHONTAS AND TUG RIVER

Pocahontas production is on a larger scale than ever, loadings amounting to as much as 76,000 tons a day. Producers are quoting $3 on lump for May and little mine run can be obtained at a price lower than $2.20.

Without any outside interference, Tug River mines continue to produce a normal volume, the daily output fluctuating between 15,000 and 17,000 tons, much of which is going into Western territory and particularly to the Steel Corporation and similar industries. Transportation and labor conditions are favorable to a large production. With the demand a little better prices have hardened.

SOUTHERN KENTUCKY

After several days of weakness caused by the temporary withdrawal of buyers representing steel interests, demand is coming back strong and prices are firm. Production continues at the rate of about 75 per cent of potential capacity, there being a great deal of loss account of car shortage.

There is practically no change in the labor situation in Harlan and Bell counties. Several more mines that have been down for some time are starting up, and while working at a minimum, are steadily recruiting labor and are having no trouble from labor agitators.

South

VIRGINIA

Further gains in production were recorded during the closing days of April, when there was a production of about 71 per cent. In some sections production was as high as 78 per cent. C. C. & O. mines were producing at about 74 per cent. Heavier demand in the East is responsible for the increased loading, at least as to mine run and slack.

BIRMINGHAM

The market is just beginning to feel the effects of the strike. Although as yet developments have been more in the nature of inquiry than in the actual placing of business. Indications point to satisfactory business materializing from outside territory very shortly. Demand in local territory is still meager and insufficient to maintain more than a 50-per cent schedule at commercial mines.

The Seaboard Air Line Ry. has closed contracts for all but a small portion of its fuel for the next year. The L. & N. and the Atlantic Coast Line have also closed contracts the past week. Few industrial contracts are being negotiated.

The domestic trade is easy and there is no active demand. Mines are managing to dispose of output on present basis of operation, but considerable effort is necessary to place business. Quotations on commercial coal have undergone no change of note for several weeks, prices being practically at rock bottom, but with the development of an active market they will probably stiffen to some extent:

	Mine Run	Washed
Cahaba	$1.85@$2.25	$2.00@$2.25
Black Creek	2.00@ 2.40	2.25@ 2.50
Corona	1.80@ 2.00	2.00@ 2.25
Pratt	1.75@ 2.00	1.90@ 2.25
Carbon Hill	2.00@ 2.25	2.00@ 2.25

Lack of orders at commercial mines has resulted in a reduction in output, which, for the week of April 22, totaled 275,000 tons. Production at furnace mines is steadily increasing, there being a heavy demand for furnace coke and also a more active market for foundry coke than has prevailed for some time.

News From the Coal Fields

ALABAMA

Governor Kilby has appointed for another term as assistant state mine inspectors **E. E. Echols**, of the first district, and **S. M. Thompson**, of the fourth district, whose terms recently expired. There were a number of applicants for the positions.

The State has made a trial contract with David Roberts, trustee of the **Montevallo Mining Co.**, for the use of convicts in the mining of coal at its Aldrich operations during May, a minimum of 225 convicts to be used at prices paid by the company prior to the receivership in February, since which time the convicts have been held in idleness at the State stockade. If the company can use convicts advantageously under present conditions the contract is to continue in force, otherwise will terminate June 1. It is understood that the State's action does not prejudice its rights in the suit now pending in the Federal Court of Appeals for the restoration of the contract existing prior to the bankruptcy proceedings.

COLORADO

A railroad from Wamsutter, Wyo., through the Snake River Valley to tap the rich coal fields in northwestern Colorado is to be built this spring, according to an announcement in Washington, D. C., by E. M. Reader, of Baggs, Wyo. The necessary money has been provided and work will start this spring. The new railroad will make these rich coal fields tributary to Wyoming, rather than to Denver.

ILLINOIS

The Murphysboro Mining Co., is the name of a new coal company recently organized and incorporated at Springfield, by Jackson County mining men. The home of the new company is at Vergennes. The capital stock as recorded at Springfield is $20,000 and the incorporators are E. A. Doerr, J. O. Doerr and Frank Scholes.

C. M. Moderwell, president, and **Charles E. Pennington**, sales manager of C. M. Moderwell & Co., spent a week in April on an Eastern trip. Mr. Moderwell then went to Tryon, N. C., on a vacation.

Thomas H. Cochran, president of the Ender Coal & Coke Co., of Chicago, was a visitor in New York recently.

The St. Paul Mine, at Cherry, has been ordered closed and the outlook for the town, which was the scene of the great mine disaster twelve years ago, is not promising. The company has given orders to dismantle the mine and the work of removing the equipment has already begun. The mine and the town have not been the same since the great disaster. As soon as the fire was out the company made repairs and attempted to resume operations, but the miners began to seek employment elsewhere and superstitious persons in Cherry prevented others from coming in. Mining men acquainted with the Cherry Mine state that the workings are in the best condition possible and that the mine has an estimated capacity of 2,000 tons a day. The St. Paul company has mines at Mark and Granville and the closing of these may follow the abandonment of the Cherry Mine.

Homer D. Jones, president of the Western Fuel Co., of Chicago, enjoyed an April vacation at French Lick, Ind.

F. A. Manley, general manager of the O'Gara Coal Co., at Chicago, and **F. A. Brazelton**, sales manager, spent part of April on an Eastern business tour.

E. R. Keeler, sales manager of the Taylor Coal Co., has returned to Chicago after a vacation in the South.

INDIANA

The Francisco Mining Co., at Princeton, has under construction a series of dams to convert a part of the old canal bed there into a lake. From this lake water will be supplied by a pumping station to the mines of the company. The main dam will be high enough to hold the water at an average depth of twenty feet.

Judge A. B. Anderson, of Federal Court, in Indianapolis, has named James A. Cooper, an attorney of Terre Haute, as receiver for the **Rowland-Power Consolidated Collieries Co.**, of Terre Haute, on a petition filed by Walter S. McCloud, of Wellston, Ohio, who listed his claims against the company at $4,229.38. Mr. McCloud, who filed the suit in behalf of other creditors, alleged that the defendant company owed $675,000 on bonds issued and that it owed $45,000 to laborers and mechanics. The defendant company on Oct. 1, 1919, authorized the issuance of $1,000,000 first mortgage six per cent bonds. The company, in an answer to the petition, admitted insolvency.

KANSAS

James Reed, mayor of Weir City, and others have taken over the old Lecoq strip mine near Coalvale.

Coal mines in Kansas in 1921 produced 4,028,624.22 tons of coal, a decrease of 31 per cent from the preceding year. There were 10,416 employees, of whom 6,897 were miners, 2,003 underground day men, and 1,516 top men. The average number of working days was 151, while the average the year before was 202. There were fourteen fatal accidents during last year, the smallest in percentage since 1897, while there were 740 non-fatal accidents.

KENTUCKY

The Louisville & Nashville R.R. has issued circular G. I. S. No. 141, dated March 25, 1922, showing the location and capacity of all the mines and coke ovens on the line of that road.

The two Southland Company mines at Henderson have resumed operations on full time. The company received orders from Chicago and the Northwest for enough coal to keep the mines in operation for at least two months and additional orders are expected which may give work to the miners through the summer.

The McAuliffe Coal Co. has filed articles of incorporation with a capital stock of $30,000 and a debt limit of $100,000. Incorporators, with three shares each, are Lucille Harlan, Frank B. McAuliffe and Tim B. McAuliffe.

The National Coal & Industrial Association, capital $100,000, has been chartered at Somerset by Dr. Will L. Taylor, F. B. Lackey and W. B. Wood.

The Eastern Star Mining Co., capital $50,000, debt limit, $50,000, has been chartered by A. N. Shrader, W. D. Collins and D. C. Collins.

MARYLAND

Receipts of anthracite in Baltimore for the coal year show that the actual deliveries were in the neighborhood of 573,345 tons, whereas the normal consumption of the territory is always in excess of 650,000 tons. The low consumption of the past fall and winter period is thereby sharply indicated, and bears out the belief of hard coal men as expressed last fall, when the city was about 120,000 tons short of normal receipts, that a hard winter would bring famine-like conditions. The Baltimore Coal Exchange compiled the following data:

BALTIMORE RECEIPTS OF ANTHRACITE

Date 1921	Penn. R. R. Cars	B. & O. R. R. Cars	Western Md. R. R. Cars	Total Cars
April	612	259	123	994
May	702	270	130	1,100
June	829	331	150	1,310
July	734	329	119	1,082
Aug	396	199	126	721
Sept	480	210	126	816
Oct	621	249	171	1,041
Nov	606	197	162	965
Dec	653	214	174	1,041
1922				
Jan	699	154	209	1,962
Feb	934	184	208	1,326
March	873	230	171	1,247
Total	8,146	2,726	1,869	12,741

MISSOURI

The Kansas City-Midland Mine No. 4, Novinger, has been abandoned. Heavy upkeep during the strike period with little available coal left decided this. It produced about 1,000,000 tons in its eight years of operation.

The Southwestern Interstate Operators' Association has compiled a statement relative to the cost of various southwestern mine strikes. A total of 1,873 separate strikes in the 69 months from April 1, 1916 to Dec. 31, 1921, caused a loss of 1,609,041 one-man working days to the miners of District No. 14, a total wage loss of $10,552,757. The greatest loss was in 1921 when strikes on account of Howat and Dorsey's trial and their sentence resulted in a loss of 615,847 one-man working days and $5,506,398 in wages. From April 1, 1916, to Dec. 31, 1918, the wage loss was $3,866,820, while for 1920 it was $1,179,538.

In 1895 the **Kolb Coal Co.** was organized with $6,000. Four stockholders put in $1,500 each. Up to ten years ago they acquired with that capital and the earnings two mines at Mascoutah, and two near New Athens. They recently sold out to **C. C. Field** and **F. H. McCauley**, of New York, and others for $1,200,000.

Reports that **Donk Bros. Coal & Coke Co.**, of St. Louis, were to abandon Mine No. 3 at Troy were premature. It is an old mine and is pretty well worked out. The only coal in the Fifth and Ninth District graded by the Fuel Administration as the equal of Carterville was from this mine.

NEW YORK

That the gas and electric companies in Greater New York and vicinity continue to be well supplied is shown by a report of the tonnage on hand as of April 30. At that time the Brooklyn Edison Co. had on hand 613 tons of anthracite and 86,202 tons of bituminous, while the New York Edison Co. had 12,497 tons of anthracite and 240,119 tons of bituminous. Other tonnages were: Brooklyn Borough Gas Co., 1,653 tons of anthracite; 2,272 tons bituminous; Brooklyn Union Gas Co., 120,223 tons anthracite, 2,247 tons bituminous, Consolidated Gas Co., 190,150 tons anthracite; 189,262 tons bituminous; Westchester Lighting Co., 30,599 tons anthracite and 7,977 tons bituminous.

The Island Creek Coal Co. reports net profits for the first quarter of 1922 after depreciation, depletion and Federal income taxes of $760,496. This is equal, after preferred dividends to $5.77 a share on the common stock.

The Pond Creek Coal Co. reports net profits for the quarter of $95,296, after depreciation, depletion and Federal income taxes.

NORTH DAKOTA

The Velva Coal Products Co., J. W. Bliss, general manager, is understood to be making plans for the development of a lignite mining project, which entails the expenditure of several hundred thousand dollars.

OHIO

M. F. McDermot, president of the Boone Coal Co., of Cincinnati, was called to Pittsburgh recently by the death of his mother. He was formerly a resident in that city until he took charge of the Amherst Fuel Co.'s Cincinnati affairs five years ago.

D. W. Riddle, of the Riddle Coal Co., Chattanooga, Tenn., was in Cincinnati recently looking over the affairs of his branch office.

The Executive Committee of the Lake Carriers' Association has announced a uniform wage reduction of $5 per month for the several grades of unlicensed seamen on the Great Lakes for the 1922 season.

Frank B. Stewart, president of the Winifrede Coal Co., after a visit to headquarters in Cincinnati has returned to the East and after looking over the situation at the mines in West Virginia continued on to Philadelphia to lay the strike situation before his board of directors.

Lake H. Bobbitt takes charge as manager for the Ft. Dearborn Coal Co. in Cincinnati. Mr. Bobbitt was with the Wood Morton Fuel Co. before it was merged with the Ft. Dearborn. He formerly had charge of operations and sales for Quin Morton's properties at Charleston.

The H. Walker Coal Co., Tiltonville, has been chartered with a capital of $200,000 to mine coal. Incorporators are Henry Walker, Joseph Bainbridge, Harry J. Merkel, Henry G. Verholt and Raymond B. Ritson.

Stripping coal at the mine of the **Wayne Coal Co.,** near New Lexington started late in April and during the first three days' operation a total of 50 cars were loaded. No trouble with the striking miners has yet taken place.

Holders of interests in the **Allied Power Industries,** a $10,000,000 trust estate of Columbus, which was forced in the hands of Barton Griffith, Sr., as receiver four months ago, are trying to raise the money necessary to pay off the indebtedness and lift the receivership. The liabilities are approximately $50,000 which is figured as an assessment of 3 per cent on the interest holders. In the meantime the coal property has been idle.

OKLAHOMA

Most of the coal mining properties in the vicinity of Henryetta are in good condition, extensive repairs and improvements having been made during the slack period before the strike. However. advantage is being taken of the idle time and the mines are being renovated and put in condition for a rush when the strike is settled. **The Crowe Coal Co.,** and the **Cherokee Fuel Co.,** the two largest operators in the Henryetta field, have removed their offices to the Elks Building. These companies have also organized sales and advertising departments. **The Warden-Pullen Co.** has completed the new tipple at its mine and laid tracks for loading and switching cars.

PENNSYLVANIA

A new coal field is being opened up near Delmont by **J. R. Johnson,** of Scottdale, who has bought a tract of land, and is taking out the coal by stripping. One big steam shovel is already at work.

Provided the constitutionality of the tax is upheld the income to the state from the anthracite tax during the last six months of 1921 was $3,150,799.65, according to operators' coal reports filed with the attorney-general at Harrisburg, in compliance with the terms of the act.

The Hudson Coal Co. has filed notice of an increase in capital stock from $15,736,250 to $16,134,250. R. C. Kann, New York City, is treasurer.

The Bostoph Coal Co. has increased its indebtedness from $5,000 to $10,000; Isaac Deisher, president and treasurer, Birks County.

How money comes round to him who waits, sometimes, is exemplified in the case of P. Bufano, of Connellsville, who has disposed of his interest in the surface of a tract of 534 acres of land near Ohiopyle. Coal, timber and surface, sold at different times, for which Mr. Bufano paid $1,100 in the aggregate, brought him $16,100. The land was sold to the **East Fayette Coal Co.**

W. R. Calverley, formerly president of the Union Collieries Co., has disposed of his interests in that concern. He still retains his affiliation as president of the Fayette Coal Corporation and the Central Youghiogheny Coal Co., with offices in Pittsburgh.

An old boiler house containing one boiler was destroyed by fire at the Continental Colliery of the **Lehigh Valley Coal Co.,** at Centralia, late in April. The damage was slight as the building was of wood and the boiler abandoned.

The management of **The Pendleton Coal Co.,** has been taken over by the **Finance and Fuel Corporation,** DuBois.

The X. O. Werder estate, containing approximately 4,600 acres of land, underlaid with 2,000 acres of two veins of Kittanning coal has been purchased from Mrs. Werder and other heirs by the **Marion-Westmoreland Colleries Co.,** of New Florence, a recently organized concern. H. W. Payne of Pittsburgh is president of the company. The consideration is said to be around $250,000. The Werder estate has been operating a small mine, using a narrow-gage road, since 1917. The new company plans to put in a standard-gage road and equip the mine with all modern conveniences.

The Mason-Adams Coal Co.. J. W. Mason, Philadelphia, president. has notified the State Department of an increase in capital from $39,600 to $40,300.

TEXAS

Agents for **Peale, Peacock & Kerr,** a concern operating coal mines in the vicinity of St. Benedict, Pa.. recently visited Dallas and placed orders for seventy-five pneumatic separators or air tables manufactured by a Dallas firm. Other large concerns have recently placed orders and the use of the machine is spreading rapidly.

VIRGINIA

W. W. Gardiner, president of the Chesapeake & Virginian Coal Co., of Lynchburg, left Cincinnati for the meeting of the Newport News Coal Exchange early in May. Another from Cincinnati to attend the meeting was **W. J. Magee,** of the Carbon Fuel Co.

The only coal contract let at Norfolk recently was for the Shipping Board's requirements during May and June. No amount was specified in the contract, although 68,000 tons per month has been the normal consumption. The Fort Dearborn Coal Co. got the contract for $4.70, and other bidders, and their bids, were: Crozer-Pocahontas Coal Co., $4.80; Robert Hasler & Co., $4.81; Kanawha-Fayette Coal Co., $5; Eastern Coal & Export Corp., $5.25 for May and $5.50 for June; Dexter & Carpenter Co.. $5.30; Leckey Coal Co., $5.50; West Virginia Coal Co., $5.93, W. C. Atwater & Co., current market prices.

WASHINGTON

F. B. Dodds, receiver of the **Colville Valley Coal Co.,** has been instructed to sell the property of the concern May 28. The property includes the mine and 200 acres at Valley.

Settlements made between **Alexander Polson** and **G. A. Alexander and others** of Bellingham together with the filing of mortgages totaling $56,000, assure the uninterrupted development of the Glacier coalfields, said to be the richest on the Pacific coast. The Glacier fields have been tied up in the courts for more than five years.

WEST VIRGINIA

Eviction proceedings have been instituted before Justice W. M. Riggs of Moundsville, Marshall County, in the Northern Panhandle District by the **Mineral State Coal Co.** to secure possession of company houses now occupied by about thirty families, the heads of which ceased work when the strike began. This company resumed operation at its Parr's Run mine on April 17 after making repairs to its cages.

Coal lands on the northern branch of the Potomac in the upper Potomac District will be developed by the **North Branch Coal Co.**, which has just been organized by business men of Piedmont and Gormania. This company is capitalized at $60,000 and its general headquarters will be at Piedmont. Principal figures in the new concern are John M. Fahey, P. H. Fahey, of Piedmont; D. C. Ridings, W. G. Stine and W. R. Fishel, of Gormania.

R. M. Lambie, chief of the Department of Mines of West Virginia, was a recent visitor in Clarksburg, delivering an address at the meeting of the Clarksburg Mining Institute. From Clarksburg he went to Pittsburgh for a few days sojourn.

The New River Co., operating in the New River field has filed notices of unlawful detainer against Alex M. Martin and others who not only refuse to give up company houses occupied by them but to return to work. The men against whom notices have been filed have agreed, however, to vacate the company houses in the near future.

George S. Brackett, secretary of the Northern West Virginia Coal Operators' Association, was a visitor in the Washington and Baltimore markets during the latter part of April.

Col. W. M. Wylie, vice-president of the Kanawha Operators' Association and general manager of the Boone County Coal Corporation, was at Charles Town, attending the trial of the "armed marchers." Col. Wylie being a witness for the state.

If upon investigation it should prove feasible, the **Lake & Export Corporation** of Huntington, will undertake the development of a tract of coal in the Government Naval coal reserves of Alaska, a concession having been granted by the Government. Negotiations have been under way for some time between the company and the Department of the Interior.

The Elk River Coal & Lumber Co., operating at Widen, has appointed L. M. Humrichouse as its Eastern sales manager, according to an announcement just made. This company was formerly represented at Philadelphia by Ernest Law & Co.

WISCONSIN

The dock of the **Reiss Coal Co.,** at Superior, had the honor of receiving the first cargo of coal at the Head-of-the-Lakes this season. It was necessary for the ship carrying the coal to buck her way through a thick coating of ice to reach harbor. Following this delivery, the **Northwestern Fuel Co.** received two cargoes. These arrived a day later and experienced less difficulty with the ice than the first shipment.

Fire partially wrecked the office of the **Callaway Fuel Co.,** Milwaukee, causing only a small loss, but messing up things generally.

BRITISH COLUMBIA

The White Lake Coal Co., which is engaged in the exploration of coal lands in the Osoyoos District, is meeting with satisfactory results. One drill hole is reported to have passed through seven seams of coal in a depth of 355 ft., while in another, lower down in the dip, two of the seams increased to 3 ft. and 4 ft. respectively of clean coal. The coal is classified as semi-bituminous of high quality. The property is to be equipped shortly for the production of from 100 to 500 tons a day.

WASHINGTON, D. C.

Application has been made to the Supreme Court by the **Spring Coal Co.** for a review of the decision of the Superior Court of Massachusetts in its case against the Bethlehem Steel Co., involving sale of coal under prices fixed by the Fuel Admintstration. The coal company lost its case in the lower court. It contends that the steel company concealed from it the fact that 20,555 tons, which were supplied to the steel company under contract, were for foreign bunkering or export, having been exported to Cuba, and that the coal company was entitled to $1.35 a ton extra under the Fuel administration prices which allowed this extra cost for coal for foreign bunkering or export. The lower court in deciding against the coal company held that the coal was not sold or delivered for foreign bunkering or export.

In a bill in the Senate the creation of a new National Park in New Mexico covering the Mescalero Apache Indian Reservation, the Elephant Butte Reservoir and the White Sands and Mal Pais Lava Beds is proposed by Senator Bursum of that State The bill stipulates that the mining laws, including the leasing act, shall not be abrogated by creation of the park as to the lands embraced therein and that coal deposits on the Indian reservation may be leased or worked for the benefit of the Indians. It is also provided that the act shall not interfere with the use and development of electrical power incident to the discharge of water from the Elephant Butte Reservoir.

The United States Civil Service Commission announces an open competitive examination for laboratorian on **(Chemical, Physical, Engineering),** on June 21-22, and Aug. 9-10. Vacancies in the Federal classified service throughout the United States, including the Departmental Service. Washington, D. C., at $1,200 to $1,500 a year, or higher or lower salaries, will be filled from this examination, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion. Appointees whose services are satisfactory may be allowed the increase granted by Congress of $20 a month.

Traffic News

In the complaint of the **Northern States Power Co.,** the commission has authorized the Watertown, S. D., Chamber of Commerce to intervene, the case relating to rates on fine coal from points in Illinois, Indiana and Kentucky to Sioux Falls, S. D.

The I. C. C. has suspended until Aug. 31 the proposal of the Denver & Salt Lake R.R. to increase rates on soft coal from Curtis Mine, Col., to points in Colorado, Iowa, Kansas, Missouri, Nebraska, South Dakota and Wyoming by 13½c. per ton.

That coal rates from the Jellico-Middlesboro field to Louisville should be reduced from $1.90 to $1.25 a ton in order to compete with western Kentucky operators who have a rate of $1.40 for approximately the same haul was the contention of the **Southern Appalachian Coal Operators' Association** in a complaint against the Louisville & Nashville, by an I. C. C. examiner at Knoxville.

The Traffic Executive Committee, Eastern Territory, is superseded by the **Traffic Executive Association—Eastern Territory,** 143 Liberty St., New York.

The Pure Oil Co., of Columbus, Ohio, has complained to the I. C. C. against unreasonable rates on an intra-plant switching movement of coal.

The Big Mandy Coal & Mining Co., of Cincinnati, alleges unreasonable rates on coal from its mines on Lenox Road to points in central freight association territory to Cincinnati and points in the Cincinnati switching district.

The McKinney Steel Co., of Cleveland, alleges unreasonable rates on coke from Fairmont, W. Va., to Josephine, Pa.

In the hearing on bunker coal rates, before the Interstate Commerce Commission, shippers asked that lower rates be allowed for bunker and export coal than for coal for use in the port. For the Alabama Mining Institute and the Alabama operators, S. L. Yerkes sought to exact a promise from a representative of the L. & N. that it would establish, if the commission permitted lower rates on bunker coal, an adjustment for Alabama operators as is in effect at Charleston. The railroad representative said the matter would be considered. John Callahan, of the National Coal Association, stated that any change in the present arrangement would have an adverse effect on the export coal business and that lower rates for coal going beyond was not a discrimination against port users. A. E. Beck, of the Merchants & Manufacturers Association, W. L. Andrews, of the Consolidation Coal Co., and W. E. Miller, of the Baker-Whitely Co., all of Baltimore, went on record as being opposed to any change in the present arrangement at Baltimore, and stated that large amounts of money were about to be expended in port facilities, which would be adversely affected by any change in the present arrangement at that port. W. W. Houston and H. C. Wade, representing the Maritime Exchange of Norfolk and the Chamber of Commerce of that City, told the Commission that coal going beyond, whether for bunker purposes of for export, should be given the benefit of a lower rate. At the conclusion of the hearing it was agreed that a statement on the subject by Secretary Hoover would be admitted to the record. The Secretary has been very much interested in this subject because of the fact that much export coal business has recently been lost to England, which he attributes to our rates. The Commission has taken the whole matter under advisement and will render a decision in the near future.

The New Jersey Zinc Co., of N. Y., alleges unreasonable rates on coke from Everett, Mass., to Hazard, Palmerton, and Aquashicola, Pa.

The U. S. Coal & Coke Co., New York, alleges unreasonable rates on large shipments of materials from various Pennsylvania points to Lynch, Ky.

The I. C. C. has dismissed the complaint of the **Northern West Virginia Coal Operators' Association** which alleged that the practices of the Pennsylvania and the Pittsburgh & Lake Erie roads from March 1, 1920, to Jan. 1, 1921, in the distribution of coal cars to mines on the Monongahela and the Morgantown & Wheeling were unreasonable in that they constituted preference to competing operators on the Pennsylvania, central region, and the Lake Erie. The commission holds that the practices complained of were not unreasonable or prejudicial.

Trade Literature

Chicago Pneumatic Tool Co., Chicago, Ill., has published a four-page folder on Little Giant coal drills, showing the drills in operation in a coal mine in Alabama.—Advertiser.

Marion Steel Bull Wheels, Calf Wheels, Steel Band Wheels and Steel Tug Rims. Marion Machine, Foundry & Supply Co., Marion Ind. Bulletin 535. Pp. 4; 8 x 11 in.; illustrated.—Advertiser.

Marion Steel Turnbuckle Derricks. Marion Machine, Foundry & Supply Co., Marion, Ind. Bulletin 530. Pp. 8; 8 x 11 in.; illustrated.—Advertiser.

Uehling Co. Equipment. Uehling Instrument Co., Paterson, N. J. Bulletin 112, Pp. 12; 6 x 9 in.; illustrated. Among the equipment described for making fuel savings possible are a "Pyro-porus" filter for keeping the gas sampling lines clean, separate recorder for the engineer's office, indicator for mounting on boiler front, and dry method of absorption.

Obituary

Walter W. Masters, long connected with the Glen Alum Fuel Co. and its Cincinnati office died at his home in that city on April 28. Mr. Masters was stricken while in Columbus and his case was diagnosed as acute Bright's disease. He was buried in his old home at Sardinia, Ohio.

Eugene DuBose Reynolds, retired coal operator, died late in April at Daytona, Fla. Mr. Reynolds was president for a number of years of the Blocton Mining Co., Hills Creek Mining Co., and organized and was president of the Summitt Coal Co. for a time. He was also formerly president of the Blocton Savings Bank. He was a graduate of the University of Alabama and was well known throughout the district. Interment took place at Montevallo, Ala.

Thomas Little, former superintendent of the Big Muddy Coal & Iron Co., mines at Herrin and Murphysboro, Ill., died recently in Mayo Bros. hospital, Rochester, Minn. He was widely acquainted in southern Illinois, having held the position as state mine inspector several years ago.

W. H. Armstrong, formerly coal director for District 18, (Eastern British Columbia and the Province of Alberta), died recently in Vancouver, B. C. He was a highly respected mining man and contractor.

Publications Received

The following publications, which have recently been issued, are obtainable from the Bureau of Mines, Washington, D. C.:

Serial 2319, "Prevention of Illness Among Miners."

Serial 2321, "Mine Timber Preservation."

Serial 2325, "Fighting a Mine Fire with Its Own Gases."

Serial 2334, "Fatalities at Coal Mines in February, 1922."

Serial 2338, "Physiological Effects of Exposure to Low Concentrations of Carbon Monoxide."

Serial 2320, "Performance of Fan-pipe Installations in Metal Mines."

Serial 2326, "Platinum."

Serial 2327, "Soapstone."

Serial 2333, "Epsomite."

Serial 2335, "Tests of Hand Extinguishers on Zinc-Dust Fires."

Serial 2336, "Bibliography of Literature on Sampling."

Serial 2337, "The Northwest Experiment Station of the Federal Bureau of Mines."

Serial 2339, "Drilling and Dustiness of Metal-Mine Air."

Serial 2318, "The Unsaturated Hydrocarbon Constituents of Gas from Destructive Distillation of a Water-Gas Tar and Coal Mixture."

Serial 2323, "The Smoke Problem."

Serial 2331, "Water Gas Tar Emulsions."

Association Activities

Indiana Retail Coal Merchants' Association

More than two hundred Hoosier retail coal merchants gathered at the sixth annual convention of the association in Indianapolis.

In the afternoon G. F. Olwin, manager of the Better Business Bureau of Indianapolis, urged upon those present the importance of building up good will for the coal industry through better business methods.

In his annual report, Secretary Yeagley pointed out that the membership had decreased during the year, due to the adverse conditions which have confronted coal men during the past eighteen months.

In his opening address, President E. E. Heller of Indianapolis, said that the worst is over, and that when the coal strike comes to an end, there will be an opportunity for business on a business basis.

J. H. Panabaker, of Kokomo, Ind., was elected president and other officers were named as follows: W. A. Dalton, Gary, first vice-president; Ray A. Macy, Indianapolis, second vice-president, and George E. Brunner, Kokomo, treasurer.

The new board of directors follows: E. M. Debos, Hammond, W. Boyd, Laporte; Charles Moellering, Ft. Wayne; C. W. Grant, Logansport; A. J. Krabbe, Lafayette; Conrad Heet, Richmond; C. F. Meyer, Jr., Indianapolis; M. O. Martin, Terre Haute; J. M. Winstandley, Bedford, and Morris Clark, Liberty.

Kentucky-Tennessee Coal Operators' Association

About twenty mine owners and others met at Pineville, Ky., late in April and formed the Kentucky-Tennessee Coal Operators' Association. After the aims and objects of the new association had been read which provide for a closer understanding with labor and co-operation with the mining bureaus of the two states, the following were elected as officers: President, W. B. Young, of Nashville, vice-president, M. T. Roach of Charleston, W. Va., treasturer, R. B. Moss, of Pinesville, and D. Stewart Miller, of Knoxville, commissioner and secretary. It is understood that the headquarters of the association will be established in Knoxville.

Coming Meetings

National Retail Coal Merchants' Association. Fifth annual convention at the Drake Hotel, Chicago, Ill., May 18-20. Executive secretary, Joseph E. O'Toole, South Penn Square, Philadelphia, Pa.

Colorado and New Mexico Coal Operators' Association. Annual meeting June 21 at Denver, Col. Secretary, F. O. Sandstrom, Boston Building, Denver, Col.

Missouri Retail Coal Merchants Association will hold its annual meeting May 16 and 17 at the Planters Hotel, St. Louis, Mo. Secretary, F. A. Parker, Arcade Bldg., St. Louis, Mo.

National Coal Association will hold its annual meeting at Congress Hotel, Chicago, May 24 to 25. Committee on arrangements, Harry N. Taylor, chairman, Dr. F. C. Honnold and Walter Cunningham

The American Wholesale Coal Association will hold its annual convention at Detroit, June 1 and 2. Secretary, G. H. Merryweather, Union Fuel Bldg., Chicago, Ill.

The fourteenth annual meeting of the **International Railway Fuel Association** will be held in the Auditorium Hotel, Chicago, Ill., May 22 to 25.

National Association of Purchasing Agents will hold its seventh annual convention at Exposition Park, Rochester, N. Y., May 13-20. Secretary, S. C. McLeod, 130 W. 42nd St., New York City.

Mining Society of Nova Scotia will hold its annual meeting May 15, at Sydney, N. S., Canada. Secretary, E. C. Hanrahan, Sydney, N. S.

American Society for Testing Materials will hold its twenty-fifth annual meeting June 26 to July 1, 1922, at Atlantic City, N. J., with headquarters at the Chalfonte-Haddon Hall Hotel. Assistant treasurer, J. K. Rittenhouse, Engineers' Club Bldg., Philadelphia, Pa.

The twenty-seventh annual convention of the **Illinois and Wisconsin Retail Coal Dealers' Association** will be held at the Hotel Highland, Delavan Lake, Delavan, Wis., June 13, 14, 15. Secretary I. L. Runyan, Chicago, Ill.

The annual convention of the **Pennsylvania Retail Coal Merchants' Association** will be held at Trenton, N. J., June 7 and 8.

Retail Coal Dealers' Association of Texas. Seventeenth annual convention at Greenville, Tex., May 15 and 16. Banquets on both nights will be tendered the association, that on Wednesday night being given by the Greenville Chamber of Commerce and on Thursday by the Wholesale Coal Men. Secretary, C. R. Goldman, Dallas.

National Safety Council. Eleventh annual Safety Congress at Detroit, Mich., Aug. 28 to Sept. 1. Executive secretary, W. H. Cameron, North Michigan Ave, Chicago, Ill.

Coal Mining Institute of America will meet Dec. 13, 14 and 15 at Pittsburgh, Pa. Secretary, H. D. Mason, Jr., 911 Chamber of Commerce Bldg., Pittsburgh, Pa.